MARINE REVIEW.

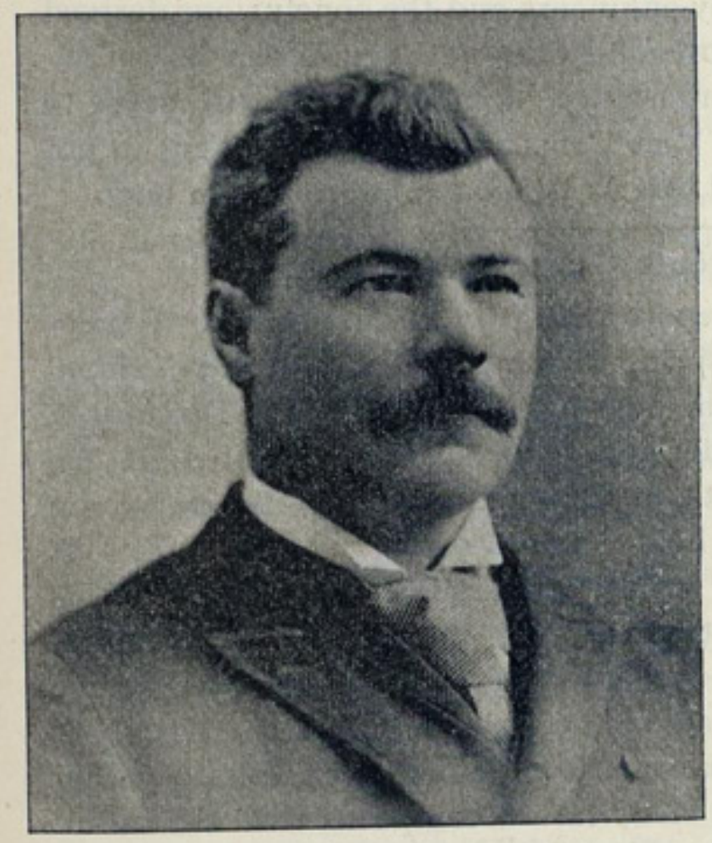
VOL. V. CLEVELAND, OHIO, THURSDAY, APRIL 28, 1892. No. 18.

The New Lake Carriers' Association.

Through a great deal of earnest work on the part of M. A. Bradley, James Corrigan, Capt. Thomas Wilson and Harvey D. Goulder of Cleveland, and a willing acquiescence from the members of the Lake Carriers' Association and Cleveland Vessel Owners' Association, there was formed at Detroit on Thursday an organization that will in future represent the common interests of vessel owners in all parts of the lakes. With a guaranteed membership on the day of organization of about 550,000 net registered tons, the new body can hardly fail to exert an influence far greater than that of the old associations. Although the name Lake Carriers' Association was retained and the organization perfected through an adjourned meeting of that body, it is a new organization in every sense of the term, based on a new constitution and formed for the purpose of taking up new work, principally that of maintaining shipping offices throughout the lakes. The new constitution and by-laws, printed in connection with this article, give in detail the aims of the new body and the laws that will govern its work, but it may be said in short that three committees, two having headquarters in Cleveland and one in Buffalo, and all having power to act without delay, will conduct the active management. These committees are so arranged that Buffalo will rule in legislative matters and Cleveland conduct the shipping offices. The members of the general organization meet once a year, appoint a board of managers of forty-five members, fix the rate of assessment to cover expenses and their work is at an end. In the board of managers the committees are selected and officers elected, and all that follows is entrusted to the committees.

The meeting in Detroit was attended by the following representatives of different lake cities: M. A. Bradley, Capt. Thomas Wilson, W. G. Mather, James Corrigan, H. D. Goulder, H. A. Hawgood and J. C. Gilchrist, Cleveland; C. H. Keep and James J. H. Brown, Buffalo; Capt. John G. Keith, Chicago; W. S. Brainard, Toledo; R. E. Schuck, Sandusky; Capt. E. M. Peck, Aaron A. Parker, D. C. Whitney, Byron Whitaker, Charles Whitaker, Capt. James W. Millen, Cash P. Taylor, Capt. T. C. Hart, L. C. Waldo, H. S. Hodge, William Livingstone, Jr., W. A. Livingstone, John Shaw, jr., J. W. Westcott, John Hurley, C. H. Westcott, Capt. Richard Cusen, A. G. Lindsay, David Carter and R. T. Gray, Detroit.

Capt. Thomas Wilson of Cleveland presided while the work of temporary organization was under way. This consisted principally of the adoption of the constitution and by-laws, here printed in full. Then followed the election of the following board of managers: F. W. Baldwin, Ogdensburg, N. Y.; T. R. Morley, Marine City, Mich.; Alvin Neal, Port Huron, Mich,; James Davidson and Charles A. Eddy, Bay City, Mich.; Alex McDougall, Duluth, Minn.; F. W. Gilchrist, Alpena, Mich.: J. C. Gilchrist, Vermillion, O.; W. E. Chapman, Sandusky, O.; F. J. Firth, Erie, Pa.; W. S. Brainard, L. S. Sullivan and A. W. Colton, Toledo; J. L. Higgie, Jesse Spaulding, J. S. Dunham, J. G. Keith and Joseph Austrian, Chicago; David Vance and R. P. Fitzgerald, Milwaukee; William Livingstone, Jr., James Millen, David Carter, E. M. Peck, H. S. Hodge and D. C. Whitney, Detroit; S. D. Caldwell, E. T. Evans, W. Bullard, W. P. Henry, John Gordon, P. P. Miller, J. J. H. Brown and James Ash, Buffalo; Thomas Wilson, M. A. Bradley, James Corrigan, George P. McKay, H. M. Hanna, H. G. Dalton, H. H. Brown, John W. Moore, B. L. Pennington, H. A. Hawgood and W. C. Richardson, Cleveland.



JAMES CORRIGAN, MANAGER.

M. A. BRADLEY, PRESIDENT.

CAPT. THOS. WILSON, VICE-PRESIDENT.

CLEVELAND PROMOTERS OF THE NEW LAKE CARRIERS' ASSOCIATION.

The board of managers assembled immediately upon their election, and after two hours' deliberation presented a surprise to the general organization. Mr. M. A. Bradley, the largest individual vessel owner on the lakes, was made president, and the retiring presidents of the two old organizations, Messrs. Caldwell of Buffalo and Hanna of Cleveland, were given charge, respectively, of the committees on legislation and finance. The officers and committees are as follows: President, M. A. Bradley of Cleveland; vice presidents, J. W. Millen of Detroit, F. J. Firth of Erie, Thomas Wilson of Cleveland, P. P. Miller of Buffalo, W. S. Brainard of Toledo, J. G. Keith of Chicago, R. P. Fitzgerald of Milwaukee and Alex McDougall of Duluth; secretary, C. H. Keep of Buffalo; treasurer, George P. McKay of Cleveland; counsel, Harvey D. Goulder of Cleveland.

FINANCE—H. M. Hanna, Harvey H. Brown, James Corrigan, H. A. Hawgood, Thomas Wilson and M. A. Bradley of Cleveland; J. C. Gilchrist of Vermillion; E. M. Peck and D. C. Whitney of Detroit; W. P. Henry and J. J. H. Brown of Buffalo; David Vance and R. P. Fitzgerald of Milwaukee; J. G. Keith and J. S. Dunham of Chicago.

LEGISLATION—S. D. Caldwell, James Ash, P. P. Miller, E. T. Evans, W. Bullard and John Gordon of Buffalo; T. J. Firth

(Continued on Page 6.)

Puget Sound Shipping.

Mr. Hugh White, a leading member of the Wilkeson Coal Company, Wilkeson, Wash., one of the largest coal producing concerns in the vicinity of Tacoma, visited Cleveland and other lake ports last week on his return to the northwest after an eastern trip. Mr. White has been examining methods and appliances for unloading soft coal from vessels. With the great increase in the coal business of Washington during the past few years, chutes and trestles have been applied to the loading of vessels from cars, and as there is no loss from breakage in the coal this system is very economical and rapid, the largest vessels being loaded now in a few hours. Little improvement has been made on old methods in the matter of unloading, however, and the Puget sound producers are now working with a view to accomplishing something in this regard. From the importance of the coal trade between the sound and San Francisco it was evident to lake men who visited the Pacific coast of late that it would be only a matter of a short time until improvements of the kind noted here would be brought about.

At this time shipping, and in fact trade of all kinds, is rather dull in the sound district, but Mr. White is of the opinion that it is not a dullness of a serious nature but simply a reaction from a great pressure of business operations. He says the new town being built by the American Steel Barge Company will be reached by the Great Northern Railway (James J. Hill's line) before the close of the present year, and as the Pacific terminal point of that great railway system will soon be one of the most important places on the sound.

Grain From Chicago to New York.

In his argument before the House committee on railways and canals in favor of an appropriation for a survey for a ship-canal from the great lakes to the navigable waters of the Hudson river, S. A. Thompson, Duluth statistician, presented the following table as showing the average charge, lake and rail, during a period of eighteen years for carrying a bushel of grain from Chicago to New York:

Calender Years.	Lake and canal.*	Lake and rail.	All rail.
1868	25.3	29.0	42.6
1869	24.1	25.0	35.1
1870	17.5	22.0	33.3
1871	21.6	25.0	31.0
1872	26.6	28.0	33.5
1873	19.2	26.9	33.2
1874	14.2	16.9	28.7
1875	11.4	14.6	24.1
1876	9.7	11.8	16.5
1877	7.5	15.8	20.3
1878	10.1	11.4	17.7
1879	13.0	13.3	17.3
1880	13.2	15.7	19.7
1881	8.6	10.4	14.4
1882	8.7	10.9	14.6
1883	8.4	11.5	16.5
1884	6.59	9.9	13.2
1885	4.55	9.06	14.0

* Including Buffalo charges and tolls.

Turret Deck Steamers.

A few weeks ago the Review described with illustrations a new type of cargo steamer patented in England by Messrs. William Doxford & Sons, Sunderland. At that time no arrangement had been made for the construction of a boat of the new class, but a contract has since been made with Messrs. Peterson, Tate & Co., Newcastle, and a boat of 3,200 tons dead weight capacity will be built at once. With triple expansion engines, on a light consumption of coal, she is to have a speed of 9½ to 10 knots, and her total cost is to be £22,500. Turret deck steamer is the name given to the new boat.

Canada Gives Little Attention to Water Levels.

In the last annual report of Canada's department of marine and fisheries, J. G. Boulton, staff commander in the royal navy and admiralty surveyor now in charge of a survey of Georgian bay, says:

"The absence of the usual summer rise of the water on the lakes was an unusual phenomenon, and whatever was the cause, was attended with serious consequences to shipping, not merely in the vicinity of my work but in the shallow channels of the lakes generally. I think myself that the low water which has existed for the past four years, culminating in the low dip of the past summer, is only temporary. From records kept by the public works department of Canada at Little Current Algoma, and at Milwaukee by United States engineers it would appear that the water was, between 1881 and 1887, as much above the average level as it is now below it. I think, therefore, that during the next few years the water will be up again. However, as long as we have to rely only upon the fickle memory of the oldest inhabitant there will always be an element of uncertainty as to whether the waters of the lakes are subject to temporary fluctuations or are steadily lowering their level. In addition to its scientific interest a knowledge of the movement of the waters of the great lakes, with a view to future commerce, may be of great economic importance in the deepening of harbors and construction of canals. I would therefore respectfully suggest that datum stones be erected say at Collingwood, Sarnia, Port Colborne and Kingston, similar to that placed at my suggestion in the interest of the survey by the department of public works at Little Current, Manitoulin island, and that your agents at the ports mentioned, be instructed to note the height of the water at least once a day during the season of navigation."

In view of the extensive records of lake water levels kept by the United States army engineers and the conclusions derived from these records, the foregoing does not seem like a very intelligent reference to so important a subject, but it will serve to call attention to the fact that Canada has been negligent in not keeping the data referred to. It is not too late to begin now.

Naval Architects Discuss Whalebacks.

English exchanges report a lengthy discussion on "Whaleback Steamers" at the spring meeting of the Institute of Naval Architects. Plans of the boat building by Messrs. Doxford & Sons, Limited, of Sunderland, which were exhibited at the meeting added interest to the discussion. A paper on the new style of boat was read by Mr. F. C. Goodall. The author stated that since the visit of the American whaleback steamer, the Charles W. Wetmore, he has been frequently consulted by ship owners as to the efficiency of such vessels as sea-going cargo boats. He had, therefore, given all the information he had been able to gather both for and against such steamers as compared with the ordinary "tramp" steamer. The objections to the whaleback steamers are the spoon-shaped bow, the want of proper means of communication from end to end of the vessel, the cramped facilities for navigation, the absence of sail-power, and the want of feeding arrangements when carrying bulk cargoes. The principal feature claimed in connection with whaleback steamers is the lesser percentage of spare buoyancy. One advantage claimed is the saving of weight of material in construction, another advantage is the largely reduced surface on which the sea can exert its force. Another feature is that the engines are placed aft.

A lengthy discussion followed this paper, most of the speakers merely accentuating the features for and against, which had been brought forward by Mr. Goodall. Mr. Martell, as the representative of Lloyd's, spoke strongly against vessels built after the model shown. He said the modern cargo steamer was the natural product evolved by the experience of shipbuilders and owners carrying cargoes of all kinds to all parts. To throw away all this experience without the most careful consideration was most hazardous.

Send 50 cents in stamps for names of masters and engineers in over 100 of the largest fleets on the lakes.

An Answer from the Inspector-General.

TREASURY DEPARTMENT,
Steamboat Inspection Service,
Office of the Supervising Inspector-General,
WASHINGTON, D. C., April 23, 1892.

EDITOR MARINE REVIEW:—I desire to call attention to the fact that you have inadvertently fallen into two errors in the editorial comments in the last issue of your paper which seem to require some notice from this office. I will first quote, and then, with your kind permission, comment thereon. First: "In the matter of names on bows of steamers, the inspection service had sent to local boards a circular declaring that they were not required." In reply to this, I have to inform you that no circular upon the subject referred to has been prepared or issued from this office. This for the reason that the law requiring names on the bows of vessels was an amendment to section 4178, revised statutes, a part of the navigation laws, coming immediately under the direction of the commissioner of navigation. The act referred to was approved Feb. 21, 1891, immediately after which the commissioner of navigation issued a circular, No. 29, upon the subject as follows:

Treasury Department, Bureau of Navigation,
WASHINGTON, D. C., Feb. 28, 1891.

To Collectors of Customs and Others:—Your attention is invited to the following act of Congress approved Feb. 21, 1891, relating to the marking of vessels' names on the bow and stern, and providing for the marking of draught, viz: An act to amend section 4178, revised statutes, relating to the marking of vessels' names at bow and stern; and also to provide for marking the draught.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 4178 of the revised statutes, be, and the same is hereby, amended to read as follows:

"Sec. 4178. The name of every documented vessel of the United States shall be marked upon each bow and upon the stern, and the home port shall also be marked upon the stern. These names shall be painted, or carved and gilded, in Roman letters in a light color on a dark ground, or in a dark color on a light ground, and to be distinctly visible. The smallest letters used shall not be less in size than four inches. If any vessel of the United States shall be found without these names being so marked the owner or owners shall be liable to a penalty of $10 for each name omitted; provided, however, that the uames on each bow may be marked within the year 1891.

"Sec. 2. The draught of every registered vessel shall be marked upon the stem and stern post, in English feet or decimeters, in either Arabic or Roman numerals. The bottom of each numeral shall indicate the draught to that line.

"The owner, agent, or master of every inspected sea-going steam or sail vessel shall indicate the draught of water at which he shall deem his vessel safe to be loaded for the trade she is engaged in, which limit as indicated shall be stated in the vessel's certificate of inspection, and it shall be unlawful for such vessel to be loaded deeper than stated in said certificate."

Masters of vessels should be notified so far as practicable of the requirements of the act.

WILLIAM W. BATES, Commissioner.

Approved: A. B. NETTLETON, Acting Secretary.

Soon afterward the commissioner issued another circular upon the subject, paragraph 5 of which by its terms was meant to be construed as exempting yachts from the provisions of the act requiring names on the bows thereof, under the act of Feb. 21, 1891. Following is a full text of the circular:

Treasury Department, Bureau of Navigation,
WASHINGTON, D. C., March 17, 1891.

To Collectors of Customs and Others:—The following regulations are prescribed under the act of Feb. 21, 1891, embodying, substantially, the recommendations of the International Marine Conference, relating to the marking of name, home port, and draught on vessels, viz:

1. On vessels called "double enders," the letters prescribed by the statute may be placed on the parts corresponding to the bows and stern; and on vessels with sterns not affording sufficient space for letters, they will be placed on the adjacent parts, in both cases so as to conform to the law as closely as possible, and so that the home port shall be marked at one end of the vessel.

2. Scows, barges, or other vessels "scow-built," or with square bow, may have the name marked on the bow instead of the side where it would be speedily obliterated by chafing against other vessels, spiles, docks, etc.

3. If all the figures indicating the draught of registered vessels cannot be placed on the stern-post they may be continued upward on the adjacent part.

4. The letters may be painted, gilded or carved. If carved block or metallic letters are used they must conform to the requirements of the statute, and be so painted or gilded as to be "in a dark color on a light ground or in a light color on a dark ground."

5. Documented yachts are provided for by the act of March 3, 1883, which requires that such vessels "shall have the name and port placed on some conspicious part of their hulls." The letters may be of the kind and colors mentioned above.

WILLIAM W. BATES, Commissioner.

Approved: A. B. NETTLETON, Acting Secrtary.

A month latter the commissioner issued still another circular, which by its terms could only be construed as exempting both yachts and steam vessels from the provisions of the act of Feb. 21, 1891, which circular, No. 58, is quoted in full as follows:

Treasury Department, Bureau of Navigation,
WASHINGTON, D. C., April 16, 1891.

To Collectors of Customs and Others:—Your attention is invited to the following ruling of the bureau upon the application of the act of Feb. 21, 1891, to the marking of the names upon yachts and steam vessels:

The marking of the name and port of yachts is specifically provided for by the act of March 3, 1883, amendatory of section 4214, revised statutes, and the marking of the names of steam vessels is likewise specially provided for by section 4495, revised statutes. These statutes were not repealed except by implication. The supreme court has held that a specific provision for a particular class is not repealed by a general provision in a later act. Hence, it appears that the statutes relating to the marking of yachts and steam vessels must be construed together with the marking provided for by the act of Feb. 21, 1891. This seems proper, also, for the reason that these several laws relate to the same subject, were enacted for the same purpose, are consistent and reconcilable, and seem to be better adapted to the particular class of vessels than the later law of February last, and it is, therefore, the ruling of the bureau that yachts must be marked in accordance with act of March 3, 1883, and steamboats must be marked as provided for in section 4495, revised statutes.

WILLIAM W. BATES, Commissioner,

Approved: A. B. NETTLETON, Acting Secretary.

I think you must cordially admit, after the preceding statements, that if there "were two branches of the treasury department sending out contradictory orders," the steamboat inspection bureau was not one of such branches but in fact all the contradictions referred to originated and were promulgated from a single branch of the treasury department, that of the commissioner of navigation.

The second error referred to is found in the following: "Ordering range lights on steamers is even worse than the matter of names on bows. For probably ten years or more past this rule calling for a rear light 15 feet above the mast head light has been printed among the rules of the board, but compliance with it has been unthought of, on account its impracticability on the lakes." There are two errors in the matter just quoted for which only one answer is required in explanation, which is that there is neither a statute law nor rule of the board of supervising inspectors that requires a rear light to be carried 15 feet above the "mast head" light of a steamer. Section 4423, revised statutes of the United States, (section 47, act of Congress, relating to steam vessels, approved Feb. 28, 1871,) rule 7, does, however, require that "all coasting steam vessels, and steam vessels other than ferry boats and vessels otherwise expressly provided for, navigating the bays, lakes, rivers or other inland waters of the United States, except those mentioned in rule 6, shall carry the red and green lights as prescribed for ocean going steamers, and in addition thereto a central range of two white lights, the after light being carried at an elevation of at least 15 feet above the light at the head of the vessel. The range lights required by the law as here quoted are practical and have been in use many years on all eastern waters, including Long island sound and Delaware and Chesapeake bays, waters fully as rough at times as are the waters of the great lakes. That it would be impracticable to carry an after light 15 feet above the "mast" head light of a vessel required by law to carry such a light is beyond question; but where range lights are required, the "mast head light" is not required.

Referring again to the rule for range lights printed in the pilot rules of the board of supervising inspectors, you will find by examination of these rules, that it is distinctly printed as one of other "extracts from revised statutes," and I have yet to learn that officers of the steamboat inspection service have authority to ignore a United States statute as your editorial would seem to imply that they should, simply because in the past they have failed "to understand their duty." I would further add as a matter worthy the consideration of lake vessel owners, the opinion, that I hardly think can be gainsaid, that a vessel in collision without the lights required by law would be deemed by the courts *prima facie* in fault and would be liable for the damages arising from such collision.

JAMES A. DUMONT, Supervising Inspector-General.

Send 20 cents in stamps for Tabulated Statement showing Lake Superior ore production for 1891, and the past 36 years.

of Erie; H. M. Hanna and James Corrigan of Cleveland; William Livingstone, Jr. and James Millen of Detroit; Jesse Spaulding of Chicago; Charles A. Eddy of Bay City; Alex. McDougall of Duluth; W. S. Brainard of Toledo.

AIDS TO NAVIGATION—H. G. Dalton, George P. McKay, B. L. Pennington, W. C. Richardson, Thomas Wilson and John W, Moore of Cleveland; H. S. Hodge and David Carter of Detroit; Joseph Austrian of Chicago; F. W. Baldwin of Ogdensburg; A. W. Colton of Toledo; E. T. Evans and W. Bullard of Buffalo; Alvin Neal of Port Huron; James Davidson of Bay City.

These officers and committees forming the working force of the new organization will be governed by the following constitution and by-laws:

CONSTITUTION AND BY-LAWS.

ARTICLE I. This association shall be known as the Lake Carriers' Association.

ART. II. Its purpose shall be to consider and take action upon all general questions relating to the navigation and carrying business of the great lakes and the waters tributary thereto, to maintain necessary shipping offices, and in general to protect the common interest of lake carriers and improve the character of the service rendered to the public.

ART. III. Every owner, or authorized representative of an owner, of any steam or other vessel navigating the great lakes, or the waters tributary thereto, if of good character and reputation, shall be eligible for membership in the association.

ART. IV. Each member of the association shall pay into the treasury a sum equivalent to 4 cents for each ton of net registered vessel property owned or represented by such member, which payment shall cover the annual dues of such member for the year ending March 31, 1893. The rate per ton of the annual dues hereafter to be paid by the members to be fixed each year at the annual meeting of the association.

ART. V. The affairs of the association shall be managed by a board of forty-five members, which board shall be elected by the members of the association at the annual meeting. The members of such board shall be so diversified in their residence as to give the various lake ports fair and equitable representation. They shall hold office until the next annual meeting of the association and until their successors are chosen.

ART. VI. There shall be a president and eight vice-presidents, all of whom shall be elected by and must be members of the board of managers. The board of managers shall also appoint a secretary and a treasurer and such other officers as may be necessary for the effective carrying out of the purposes of the association.

ART. VII. The board of managers shall determine where the principal offices of the association shall be located and shall prescribe rules and regulations to govern their proceedings and the affairs of the association.

ART. VIII. This constitution may be altered or amended by a two-thirds vote of the members present at any meeting of the association, provided each such alteration or amendment shall have been previously proposed at a meeting of the association or of the board of managers, and shall be communicated in the notice or call for the meeting at which it is acted upon.

BY-LAWS.

ARTICLE I. The annual meeting of the members of the association shall be held at Detroit, Mich., at some time between the 1st day of December and the 31st day of March each year, at such date as the board of managers may deem advisable, due notice of the date and place of meeting being given.

ART. II. The order of business shall be as follows: First—Reading of minutes of previous meeting. Second—Reports of committees. Third—Reports of officers. Fourth—Unfinished business. Fifth—New business.

ART. III. The board of managers shall meet and organize at any time within thirty days after their election and shall elect from their number a president and such other officers as are to be chosen in accordance with the constitution. Special meetings of the board may be held at the call of the president as hereinafter provided in Article 8. Voting by proxy shall be allowed at all meetings of the board of managers.

ART. IV. The presideut shall preside at all meetings of the board and regulate discussion according to the usual parliamentary rules and under direction of the board, shall have, general charge of the interests of the association and the conduct of its affairs.

ART. V. The vice-presidents, in the order of their rank, shall preside at the meetings of the board in the absence or inability of the president. They shall perform such other duties as may from time to time be respectively assigned to them by the board.

ART. VI. It shall be the duty of the secretary to give notice of and attend the meetings of the members of the association and the board of managers, and to keep regular minutes of their proceedings. He shall conduct the correspondence of the association, record and retain on file all records and papers which the board may direct to be preserved, and in general perform the duties pertaining to his office.

ART. VII. The treasurer of the association shall collect and record all dues and issue certificates of membership in the association. He shall be the custodian of all its receipts from every source and shall, under the direction of the finance committee, make all the disbursements necessary to meet its current expenditures. He shall keep proper books of account, shall procure and file property approved and receipted vouchers for all amounts disbursed, and shall deposit all funds received by him to the credit of the association in such bank or depositories as may be designated by the finance committee, and in the absence of the secretary shall act as secretary of the committees on finance and aids to navigation.

ART. VIII. The board of managers shall, at its first meeting appoint standing committees of the board as follows: A finance committee, to consist of fifteen members, to whom shall be referred all matters relating to the establishment, maintenance and management of shipping offices, the raising and expenditure of money, and all other matters not falling within the jurisdiction of any other committee. A committee on aids to navigation, to consist of fifteen members, to whom shall be referred all matters relating to lights, signals, buoys and life-saving stations. A committee on legislation, to consist of fifteen members, to whom shall be referred all matters relating to bills, laws or regulations of a general character proposed, enacted or made by any board, officers or any legislative body not falling within the jurisdiction of the committee on aids to navigation. On each standing committee there shall be at least six members, who shall reside at a single port, which port shall be the headquarters of the committee. Five shall constitute a quorum for the transaction of business. Each standing committee may hold meetings at any time upon call of its chairman, or at the request of three members of the committee, all members of such committee to be notified at least twenty-four hours in advance of such meeting. Matters coming before the association for action shall be referred by the secretary under general direction of the president to the appropriate committee, but in case any matter shall come before the association which, in the opinion of the president, should be referred to the board of managers and not to a standing committee, the president may direct such reference, and, in such case a special meeting of the board of managers shall be called at Detroit to consider such business. At least three days' notice of such meeting shall be given, and ten members shall constitute a quorum. The standing committees shall have power to act upon business referred to them and shall go forward with their work as in their judgment they deem best, but each committee, and all of its work, shall be under the general supervision of the board of managers; and upon the written request of ten members of the board of managers, a special meeting of the board shall be called at Detroit upon at least three days' notice, to reconsider and review the action of any standing committee. The call for such meeting shall state its object and purpose, and no business shall be transacted at such meeting except that mentioned in the call. A quorum at such a meeting shall consist of not less than fifteen members present in person, and enough legal proxies to make up a clear majority of the board.

ART. IX. In members' meetings voting shall be by tonnage, and in meetings of managers and committees by individuals.

ART. X. The shipping offices maintained by the association shall, where possible, be under the immediate supervision of a local executive committee to be appointed by the finance committee. Such local executive committee shall be chosen after consultation with the local members of the association. It may conduct its business as it shall find convenient and desirable, and may associate with it such other persons as it may deem best, but the association shall look to the local committee as appointed for proper and due supervision of the shipping office under its immediate care.

ART. XI. All officers of the association hold their offices subject to the pleasure of the board, and shall serve without remuneration unless the board shall decide otherwise, and cause the decision to be communicated to the officers or officer in writing before they enter upon the term of service for which compensation is to be allowed.

ART. XII. These by-laws may be altered or amended at a regular or special meeting of the board of managers by a two-thirds vote of the members present, provided not less than three days' notice of such proposed change shall be given to each member of the board.

The secretary was instructed to add two articles to the by-laws, one making notice of meeting by mail binding, and the other providing that the president shall not hold office for more than one term.

The assessment of 4 cents a ton is made to cover the cost of private lights, and, although the full assessment will be charged on all tonnage, a rebate will be granted at the close of the season to vessels not trading through the rivers. The finance committee will meet in Cleveland Saturday with the keepers of private lights to make arrangements for their maintainance during the present season.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company	$100 00	$.....	$ 75 00
Champion Iron Company	25 00	.....	62 50
Chandler Iron Company	25 00	.....	46 00
Jackson Iron Company	25 00	.....	100 00
Lake Superior Iron Company	25 00	47 00	50 00
Minnesota Iron Company	100 00	.....	77 00
Pittsburg Lake Angeline Iron Co	25 00	150 00	160 00
Republic Iron Company	25 00	.....	21 00
Ashland	25 00	.....	46 00
Section Thirty-three	25 00	.....	6 00
Brotherton	25 00	.....	2 50
Iron Belt	25 00	2 15	52 00

The market for iron mining stocks is duller than it has been for years. There is no trading in even the old line securities and prices are very low. The Lake Superior Iron Company has declared another regular dividend of $1 a share and an extra dividend of $2 a share from reserved earnings of previous years, payable on the 28th inst., to stockholders of record April 21. This is a division of $180,000. It is expected, of course, that the Chandler company will pay a regular divided of $1 on May 1, but there are no other announcements of profit sharing. Stock in the Aurora company, one of the Gogebics which has an accumulation of earnings amounting about $350,000 or $400,000, would find some purchasers as a dividend is expected with this season's work.

The contract for the building of the Mesaba branch of the Duluth & Iron Range Railroad into the new iron district has been let to Winston Bros., of Minneapolis. The distance to be covered under the first contract is sixteen miles, through a very rough country, as far as the West Canton mine property of the Minnesota Iron Company, within about a mile of the Biwabik and Cincinnati properties and not far from the town of Merritt. The work will be commenced at once.

Pickands, Mather & Co. of Cleveland have issued a very neat book showing average analysis for the past two or three years of the Minnesota, Chandler, Odanah and Hemlock ores, for which they are exclusive sales agents. The book also contains a table showing yield of natural ore, when dried and analyzed at 212°f, at various percentages of moisture. It is a most valuable reference manual for anyone in the ore business.

The Minnesota Company has a little more than 250,000 tons of ore in stock and with new operations and a big increase in machinery promised shortly is expected to make an output this season of 550,000 tons or more.

The Vermillion Iron Journal reports Josheph Sellwood, manager of the Chandler, as again repeating the statement that the Chandler will ship 500,000 tons this season.

Alex Maitland of Negaunee has undertaken with other parties a resumption of work at the Grand Rapids mine, Marquette range, which has been idle for some time past.

Lake Freight Matters.

With improvement in grain freights at both Chicago and Duluth it is more than proable that the close of the present week will see iron ore freights advanced to at least 70 cents from Escanaba and $1.10 from the head of Lake Superior. At this writing vessel owners are holding tonnage for such an advance. Soft coal rates are based on 45 cents to Milwaukee and 40 cents to Duluth with no indication of an immediate change. Buffalo vessel owners advance the opinion that shippers of hard coal will restrict the movement in May as they have been doing during the present month, in order to influence the sales of coal. Such a policy will throw the bulk of the shipping business into the latter portion of the season, as it is already settled that any improvement in the demand for ore must have its effect late in the season.

Although the amount of ore on Lake Erie docks at the opening—1,750,256 gross tons on April 15—as shown by the last issue of the REVIEW, is quite large, it has been known all along to be entirley sold up and the stocks have had no important bearing on the market. At this time a year ago when stocks on dock aggregated a full million tons more, with much of it unsold, the pig iron furnaces were all out of blast. Now there is at least a certainty of present stocks being cleaned up very rapidly under the heavy make of pig iron, and every day brings the ore dealers nearer to the time when furnace men must come into the market for additional purchases.

Proposing More Rules for the Inspectors.

Senator McPherson a few days ago introduced a bill, No. 2,966, which seeks to place the matter of the regulation of lights on barges and canal boats when in tow of steam vessels in the hands of the supervising inspectors of steam vessels. The bill proposes an amendment to that effect to the present rule 7, section 4,233, revised statutes. When it is considered that this same rule, as far as it applies to range lights on steamers, has been in operation on the lakes for several years past and is now a source of great annoyance to everybody concerned, it would seem that to increase the powers of the steamboat inspection service in this regard would only be adding confusion to matters already complicated.

Canadian Port Matters.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., April 28.—Already over 200,000 bushels of grain has arrived for transhipment, but the lower canals are not yet open and laden barges are compelled to lie here. Something is wrong else the canals would be ready for the opening of navigation. Certain repairs are supposed to be made to the gates during the winter season and it is these repairs, many of which are incomplete, that is causing the difficulty. If vessels come here after all the available barges are filled and can not get unloaded it will be a serious blow to this port. Hon. M. Haggart, minister of canals, is a vigorous administrator, and certainly when the matter comes to his attention he will see that a remedy is applied and that the delay does not occur again in the future.

It is expected that all the timber will have been brought forward by the end of July. This work will be rushed so that the lumber carrying bottoms may procure a part of the grain trade. The quantity of timber to be removed is about the same as last year. The Ceylon brought a very large load on her last trip. There were 400 pieces on her deck.

Owing to high rates at the government dry dock several Kingston vessels have been sent abroad for repairs. Rates of other Canadian docks are much lower.

The new steamer Columbia, being built at New York for the Richilieu & Ontario Navigation Company, is original in design, 180 x 36 feet, the full length of the St. Lawrence locks. She must go 18 miles an hour. About the end of May she will be launched.

Early this week a large deputation will wait on the government and urge the building of a ship railway from Georgian bay to the city of Toronto, and the deepening of the St. Lawrence canals to 20 feet. Both are schemes of the distant future.

The Hon. Mr. Tupper has introduced into Parliament an act to amend the steamboat inspection act which allows steamers on inland waters to carry wooden life boats instead of metal ones. It was claimed in favor of the former that they could be repaired on board. The bill was referred to a committee.

During last year $874,132 was spent by the Canadian marine department, an increase of $67,000 over the previous year. The lighthouse and coast service cost $492,196, or $26,000 more than in 1890. The number of lighthouses now maintained is 710, as compared with 227 some twenty years ago. The losses of sea going vessels and cargoes during 1890 amounted to $694,653; on inland waters there were 14 disasters representing 11,414 tons register and a loss of $44,169.

The Grummond line tug Swain returned to Detroit Thursday with her steam pumps, having raised and safely delivered the schooner John B. Merrill at the new dry dock, Port Huron. The vessel is being unloaded as fast as possible when she will be dry docked for repairs, which will take about six weeks. Capt. Ed Tormey of the tug Swain, as well as Diver Thomas Gradey, were complimented by the insurance agents and Mr. Connely, the owner, for their successful work in building a bulk-head around the bows of the vessel before she could be floated. The expense of raising and delivering the Merrill will be in the neighborhood of $3,000.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, ... } PROPRIETORS.
F. M. BARTON, ... }
HOMER J. CARR, - - - Associate Editor and Manager Chicago Office, 210 South Water Street.

Published every Thursday at No. 516 Perry-Payne Building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,600 vessels, measuring 1,154,870.38 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of vessels of 1,000 to 2,500 tons on the lakes on June 30, 1891, was 310 and their aggregate gross tonnage 512,787.58; in all other parts of the country the number of this class of vessels was, on the same date, 213 and their gross tonnage 319,750.84. The classification of the entire lake fleet is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,592	756,751.53
Sailing vessels	1,243	325,131.06
Canal boats	703	72,515.42
Barges	62	20,472.37
Total	3,600	1,154,870.38

Tonnage built on the lakes during the past five years, according to the report of the United States commissioner of navigation, is as follows:

	No. of boats.	Net Tonnage.
1887	152	56,488.32
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
1891	204	111,856.45
Total	1,021	485,042.94

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 234 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014.

Entered at Cleveland Post Office as Second-class Mail Matter.

IN the Senate a few days ago there was passed without opposition the two resolutions recently introduced by Senator McMillan of Michigan, one asking the secretary of state whether the treaty of 1817 governing the naval force to be maintained on the great lakes is still in force, and the other seeking an answer from the secretary of the navy as to whether lake shipbuilders have been barred from participating in the work of building war vessels on account of this treaty. These resolutions have been made a basis for a great deal of sensational newspaper talk throughout the country about the defenseless condition of the lake cities, and the question of protection on the lakes against invasion by foreign powers has also been coupled with the project for a deep-water connection in American territory between the lakes and the Atlantic seaboard. While newspaper and magazine writers in New York and other places have been indulging in a visionary discussion along this line, however, the vessel and shipbuilding interest along the lakes have looked upon the whole matter in a practical way only. If the treaty of 1817 is to stand in the way of the ship builders of the lakes entering into competition with coast builders for such war vessels as may be constructed here, as it certainly did sometime ago in the case of the bid of F. W. Wheeler & Co. of West Bay City, Mich., for a practice vessel for the navy, then the lake interests want this treaty abrogated, or so changed as to admit of their competing in this kind of work, which they are capable of doing. There is no clamor though for a great naval force on the lakes, or any show of hostilities against Canada building a few revenue cutters; neither is there any hope of the project for a seaboard outlet being advanced through the claims that a ship-canal of the kind would be of advantage in time of war. As a great commercial enterprise this project has already reached the point where it is probable that a majority of the present Congress will vote a large sum for a survey, but this is, of course, only a preliminary step in a very important matter. Some of the leaders in lake commerce, while discouraging the present agitation in favor of the Lake Ontario-Hudson river project, are inclined to the belief that the great cost of such a work will yet force an agreement between this country and Canada for the completion of the St. Lawrence canals, or that the question may even tend to bring about annexation. The St. Lawrence river outlet is the natural outlet and unless the signs are mistaking it will within a very short time be a subject of international importance.

THE sundry light-house bill for which Senator Brice and Congressmen Taylor, Brickner and Houk are working so earnestly carries appropriations for light-ships at Bar point, Ballard's reef and the Lime-Kilns' crossing, where the absence of private lights this spring has already resulted in losses aggregating several thousand dollars. Vessel owners in all parts of the lakes should write to their congressmen to do all in their power in support of this bill. The bill has passed the Senate and will in all probability pass the House, but the best efforts of the lake representatives will be needed in the committee on appropriations to secure the incorporation of all its provisions in the civil sundry appropriation act.

A RECENT issue of the New York Press attacks for political effect the work of the present river and harbor committee in the house. A number of projects including the 20-foot channels for the lakes are attacked on account of the appropriations which they carry. The Press seems sadly out of line with its party in this sort of nonsence. The Republican party from its foundation has been heartily in favor of internal waterway improvements, and the passage of the river and harbor bill now before Congress will meet with the approval of fair-minded people throughout the country. No measure could have been more carefully prepared.

ANOTHER accident to the lock machinery at St. Mary's Falls canal serves to show that, no matter how great the precautions may be, the danger of Lake Superior commerce being entirely shut off at any time during the season of navigation is still a great obstacle to the vessel interest that will continue until the new lock now under way is completed. It is a serious condition to consider in connection with such an important trade as that now carried on from the northwest by water.

CHAIRMAN HOLMAN of the appropriation committee of the House is said to be opposed to the river and harbor bill. He wants the bill returned to the committee with instructions to bring in a measure appropriating $15,000,000. It is fortunate that the river and harbor bill carries its own appropriations and it will not be necessary to have it pass inspection in Mr. Holman's committee. The chances of passage of the bill in the House are very favorable.

UNITED States Senator Calvin S. Brice of Ohio writes Capt. George P. McKay, secretary of the Cleveland Vessel Owners' Association, "that he will be glad to receive at any time such suggestions and information of interest to lake commerce as occurs to any individual or any officer of lake organizations." Delegations of vessel owners visiting Washington have found Mr. Brice an earnest worker in behalf of the lake marine. Such willingness from one in high position should be appreciated.

Grain at Chicago and Duluth.

Stocks of wheat at Chicago and Duluth on Monday, the 25th inst. were:

	Chicago.	Duluth.
In store	7,958,654 bu.	15,103,186 bu.
Decrease last week	739,457 bu.	160,755 bu.
Excess over same time last year	2,430,368 bu.	9,726,452 bu.

Stocks of corn in Chicago aggregate 1,803,392 bushels, a decrease of 117,360 bushels for the week and an increase of 1,091,173 bushels as compared with stocks on the same date last year. Stocks of oats foot up 583,501 bushels as compared with 474,690 bushels on the corresponding date last year.

Around the Lakes.

Toledo tug owners have pooled their interests with Sullivan & Hubbard as managers.

The propeller Cuba will run in the Lackawanna line this season, with Capt. Robert Young still in command.

Sunol is the name of a large wooden harbor tug launched at Ashtabula Harbor Tuesday for Kunkle Brothers.

Orders have again been given this season to keep the Welland canal closed all day on Sundays and allow no boats to pass through.

Capt. William Carver, who sailed the Canadian steamer Tilley last season, is to sail one of the new whalebacks in the Gladstone-Buffalo line.

E. D. Cummings of Chicago, who bought the barge Michigan will probably purchase the steamer Nebraska also, under an understanding that he is to have her for $50,000.

Between the hours of 6 a. m., and noon on Sunday sixty-three large boats passed Detroit, an average of one every five minutes. Their aggregate capacity was about 75,000 tons.

Messrs. Pridgeon, Parker and others of Detroit, owners of the rebuilt steamer Kasota have incorporated their interests in that boat under the name Pridgeon Transportation Company, capital $150,000.

Capt. M. Madden of Saginaw and Capt. W. H. Strong of Tonawanda have purchase the barge T. H. Cahoon. She will be sailed by Capt. Strong and will be towed with the Middlesex by the steamer J. H. Prentice.

The Chicago Drydock Company has sold its site near Harrison street for $90,000 and the affairs of the company will be closed up. The new owners, the Edison Lighting Company, will take possession May 1.

The Green Bay, Winona and St. Paul Railway Company has purchased the steamer City of Marquette from the Milwaukee & Eastern Transit Company for $25,000. She will run between Kewaunee and Frankfort.

A. T. Thatcher, one of the best known dealers in hard coal at Chicago, met death last week in a railway accident while on his way to New York to attend a meeting of coal dealers. Mr. Thatcher's coal receiving dock was at South Chicago.

Alex Anderson of Marine City last week launched the lumber steamer which he has been building in the Holland yard at that place for Mills & Co. of Marysville, Mich. The boat is 140 feet keel. She will be sailed by Capt. Henry Kendall.

The Detroit Dry Dock Company on Saturday launched the new Detroit river ferry boat Promise, and Wheeler & Co. of West Bay City launched one of the coast light-house tenders. Boats on the stocks in the different yards around the lakes will now be floated at the rate of two or three a week until June.

Owners of the big Menominee line steamer German were very fortunate in securing her release so readily from Poverty island reef. Although she went onto the rocks light and was out about two feet, she is not leaking and will come down with a full load of ore from Escanaba. She will be docked for examination.

Capt. Sweeney, veteran master in the Goodrich line, has retired to a comfortable country home near Manitowoc. It was expected up to a short time ago that Capt. Sweeney, who has seen forty years of service aboard ship, would again take the twin-screw passenger steamer Virginia this season but his retirement is final.

In Detroit on Monday last the owners of the barge Wahnapitae, which was wrecked off Cleveland piers in November, 1890, libeled the steamer John M. Nicol for loss on boat, cargo, etc., aggregating $61,037.67. The Nicol towed the barge down the lakes and it is claimed whistled for a tug and dropped her without warning off Cleveland just previous to the accident.

Wheeler & Co. of West Bay City, the Sheriffs Manufacturing Company of Milwaukee, Union Dry Dock Company of Buffalo, Detroit Dry Dock Company, Detroit Boat Works, Cleveland Ship Building Company, Globe Iron Works Company, City Forge and Iron Company and Brown Hoisting and Conveying Company, all of Cleveland, are expected to prepare exhibits for the World's Columbian Exposition.

Affairs in Admiralty.

Owners of the steamer Chenango, which burned a year ago on Lake Erie, brought suit in the United States circuit court at Detroit to recover on an insurance claim. The result of the suit, which was heard only a few days ago before a jury, will prove interesting to vessel owners who allow custom to govern their actions in a great many matters pertaining to insurance. On April 10, the day before the boat started and while she was lying at the wharf loading, her owners went to Capt. Eber Ward, insurance agent at Detroit, and made an agreement with one of his clerks for insurance against her loss by any marine calamity, including fire. It was to take effect immediately, although it was well known that the policy could not be secured for a number of days. When the vessel burned the Greenwich Insurance Company, in which the insurance was placed, refused to pay, claiming first that Capt. Ward was not empowered to make such a contract and second that the fire insurance was not to commence until April 20, ten days later. In the second contention they were borne out by Capt. Ward's clerk, who testified that the Chenango's owners did not ask to have the fire insurance commence immediately. This was denied, however, by the owners, who claimed that the clerk's last words in closing the conversation were, "Now you are insured." The principal importance of the case arose from the claim made by the insurance company that Capt. Ward was not authorized to contract that the insurance should commence immediately. According to the printed blanks of the company its policies were not to be considered valid until signed by the officers of the company. The common custom among vessel men, however, is to do just as the owners of the Chenango did, and then consider themselves insured. In his charge to the jury Judge Swan said: "If the company held out Capt. Ward to the public as an agent with authority to take business in accordance with the usual custom and if it furnished to him a list of vessels with their class and rate noted, in which the Chenango was given as a desirable risk, then the company would not have the right to refuse arbitrarily and without reason to issue the policy after the application had been taken by Capt. Ward." The jury was instructed to bring in a verdict for the plaintiffs in case it believed that there was a verbal contract between them and Capt. Ward that the entire insurance should commence to run on April 10. After being out half an hour the jury brought in a verdict for $5,475 for the plaintiff, the full amount claimed.

Serve Ribbed Tubes in Practice.

The Caledonia Steamship Company, Liverpool, says in a letter to John Brown & Co., concerning the Serve tubes placed in the new steamer Ratho running from Liverpool to Bombay: "The tubes have given no trouble during the first voyage, just completed, in keeping clean, and as best we can judge will realize the advantages guaranteed." The tubes in this steamer are 3¼ inches outside diameter. Nothing but natural draft is used. The smoke-stack is longer than usual and this gives sufficient draft to clean the tubes.

In order to determine the most suitable conditions for using Serve ribbed tubes in boilers, Messrs. John Brown & Co. of Sheffield have fitted up a complete testing plant, by means of which comparative figures can be obtained for the Serve tube and for the plain tube, under a wide range of working conditions. Thus experiments have been made with natural draft, with forced draft and with induced draft, both when the air is supplied to the furnace cold and when it is previously heated, and much informrtion of a valuable character has been gained. It has been found that for each variety of coal a certain degree of draft is required if Serve tubes are to be successfully used. Thus when very smoky coal is used with low natural draft, the tubes choke up, and hence in future Messrs. Brown will not offer to supply tubes for such conditions of working. Such unfavorable conditions occur with small steamships having low funnels; but with high funnels, or with forced draft, no trouble is experienced even when smoky coal is burnt. When the draft is such that thirty pounds of coal are burnt per square foot of grate area, the tubes can be relied upon to keep clean. As the result of their experiments Messrs. Brown recommend that with natural draft the height of a steamship's funnel should, if Serve tubes be used in the boiler, be 65 feet above the grate for Welsh coal, and 75 feet if smoky coal is used. Under such conditions the firm are prepared to guarantee with the serve tubes a minimum saving of 10 per cent. when cold air is supplied to the furnaces, and somewhat less when the air is previously heated.

Voyage of the Wadena.

Mr. F. B. Smith, who left Cleveland as chief engineer of the steel yacht Wadena, built for Mr. J. H. Wade by the Cleveland Ship Building Company, returned this week from Alexandria where he left the yacht with Mr. Wade and his family and the other officers who went with her from this country. Mr. Smith quit the boat of his own account for reasons of a business nature, and he bespeaks a most happy voyage for Mr. Wade. He is of the opinion that the yacht is now at Jaffa on the coast of Syria, 33 miles from Jerusalem. Jaffa is the port of Jerusalem and a place also of greatsantiquity and renown in christian history. It was expected that the Wadena would remain there about three weeks and then go on to Constantinople and from there to Marseilles. From Marseilles Mr. Wade will continue overland, the yacht going to England where he will join her later and prepare for a Baltic sea cruise about June. Among the American yachts met by the Wadena on the other side were the Alva, a boat owned by one of the Vanderbilts, the Sultana, owned by Mr. Park of New York, the Utowanna and James Gordon Bennett's yacht, which remains with him in France.

Mr. Smith says the yacht attracted unusual attention abroad on account of her being built on the American lakes and her coming was anticipated in many places where it was least expected. The southerly course taken across the Atlantic he thinks was unnecessary considering the sea-going qualities of the boat, notwithstanding her great depth in the water. This feature in the boat, brought on by additional machinery and a heavy cabin aft, put in by Mr. Wade after she was well under way, was criticised, but everywhere the hull and her elegance in all arrangements were greatly admired. Weather that would be considered very heavy on the lakes was encountered in several places. In speed, Mr. Smith says, the yacht has shown more than was expected. She was speeded on one occasion to 15 knots and made regular long runs at 12 knots, or nearly 14 miles.

In General.

Senator Frye a few days ago introduced a bill, No. 2,915, giving to supervising inspectors of steam vessels the power to fill vacancies in local boards in cases where for any reason the board of designators, made up of the district judge, collector of customs and supervising inspector, fails to fill the vacancy within ten days from and after their meeting.

Mr. Robert P. Porter, superintendent of the eleventh census, addressed a large and appreciative audience in Association hall, Cleveland, Tuesday evening, on the subject "Industrial Status of Cleveland in Relation to the Traffic on the Great Lakes." The address was based upon the importance of lake commerce as shown by the census and was very interesting.

The last Congress appropriated $28,000 for the construction of a vessel to be used by the government for the purpose of boarding incoming vessels at Chicago. The amount as shown by inquiry among lake ship builders, was insufficient for the kind of boat required and Congressman Taylor of Illinois has a bill before the present Congress asking for an additional appropriation of $12,000, which it is thought will be granted.

Liner Exchange.

Advantage is being taken of the new departure in the MARINE REVIEW Liner Exchange. One of the largest boiler concerns on the lakes asks for a sheet iron worker and a layer-out and another shop is in need of a flange fitter and turner-up. Both positions are desirable and boiler makers can obtain the addresses of the companies by writing to the REVIEW. A liner under the above head costs you nothing and never fails to bring a reply.

Publications.

Marine Engineers' Beneficial Association No. 2 has just issued a handsome directory of the local lodge and an official directory of the whole association, including correct addresses of corresponding secretaries of sixty-nine lodges. It contains eight full page illustrations and a number of pages of fresh reading matter. Among the full page illustrations is one of the national officers. The Albany directory is the only one issued that approaches the Cleveland directory in any of its features.

Howard Place's catalogue of yachting equipment has been received from Frank G. Overbeke, Cleveland agent for the eastern outfitter who furnishes goods to the foremost clubs of New York, Boston and Philadelphia. The Cleveland agency, where a stock of uniforms, sweaters, etc., is kept on hand, is located at 112 Woodland avenue.

The annual report of Buffalo trade and commerce has been received from Secretary Thurstone of the Merchants' Exchange. Vessel owners who are interested can secure a copy by applying to Mr. Thurstone.

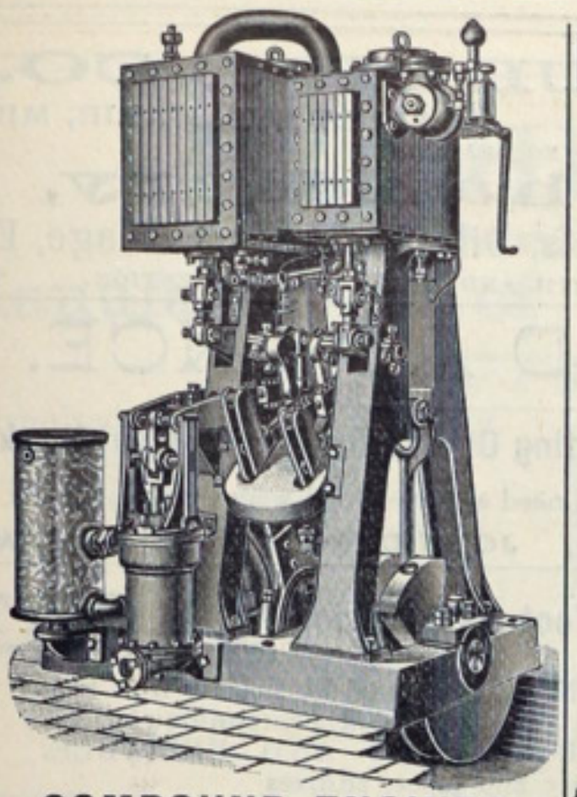
Beeson's Inland Marine Guide for 1892 is an improvement over last year, being embellished with seven full page engravings, five of which were prepared and have appeared in the MARINE REVIEW. The classified directory is of value. The book can be obtained of Harvey C. Beeson, Detroit, Mich.

Trade Notes.

When renewing his advertisement, Samuel Woodhouse, chain manufacturer, Newburgh, Ohio, said that business was good and that he had received several gratifying replies from his advertisement in the REVIEW, one being for an unusually large order of cable chain.

A. T. Van Tassel & Co. are doing the plumbing and fitting on the steamers Mitchell and Schuylkill at the yards of the Globe Iron Works Company. This company did the copper work on the light-house steamers Columbine and Lilac, and furnished two Born ranges for the Andaste and Choctaw at the Cleveland Ship Building Company's yard.

During the week ending Saturday the 23d inst., shipments of eastbound freight over the ten roads engaged in the traffic out of Chicago amounted to 65,054 tons, against 106,600 tons by lake, or a gain of 41,546 tons in favor of the lake route. This is about the proportion in favor of the water traffic that will prevail throughout the season.



COMPOUND ENGINES.

8 x 14 x 12	14 x 24 x 20
9 x 16 x 16	15 x 28 x 24
10½ x 18 x 16	16 x 30 x 24
12 x 21 x 20	18½ x 32 x 30

21 x 42 x 30

Side Valves with Radial Valve Motion.

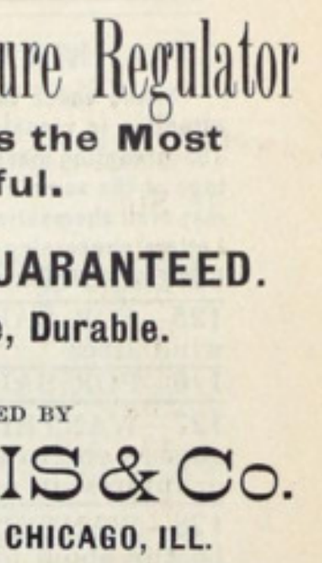
VULCAN IRON WORKS, CHICAGO.

FRANK G. OVERBEKE

TAILOR AND OUTFITTER.

Boat Crews uniformed at short notice, according to club regulations and satisfaction guaranteed. Catalogue sent on application. Western agents for Howard Place, New York City.

112 Woodland Ave., Cleveland, O.



PRESSURE REGULATOR No. 2.

THE DAVIS Pressure Regulator

For Boat Work is the Most Successful.

SATISFACTION GUARANTEED.

Simple, Accurate, Durable.

MANUFACTURED BY

G. M. DAVIS & Co.

26-32 So. Jefferson St., CHICAGO, ILL.

ALL MAIL for Captains, Engineers and Crews of Vessels sent in care of ABBOTT & MESSENGER, MARINE GROCERS, LORAIN, OHIO, will be delivered immediately on arrival of vessels.

The Jenks Ship Building Co.

GENERAL SHIP BUILDERS,

Correspondence Solicited. PORT HURON, MICH.

JUST WHAT YOU WANT FOR SAFETY

Learman's Patent Davit Fall Hook.

Special Size with Hook and Block Combined for Yachts.

"Your self-detaching Davit Fall Hook I have in use on steamers of the Mutual and Orient lines. and from reports made by masters I can safely, recommend the hooks. The captains cannot say too much in their prasse."

Signed, GEO. P. MCKAY, Gen. Mgr.

FOR SALE BY SHIP CHANDLERS, or

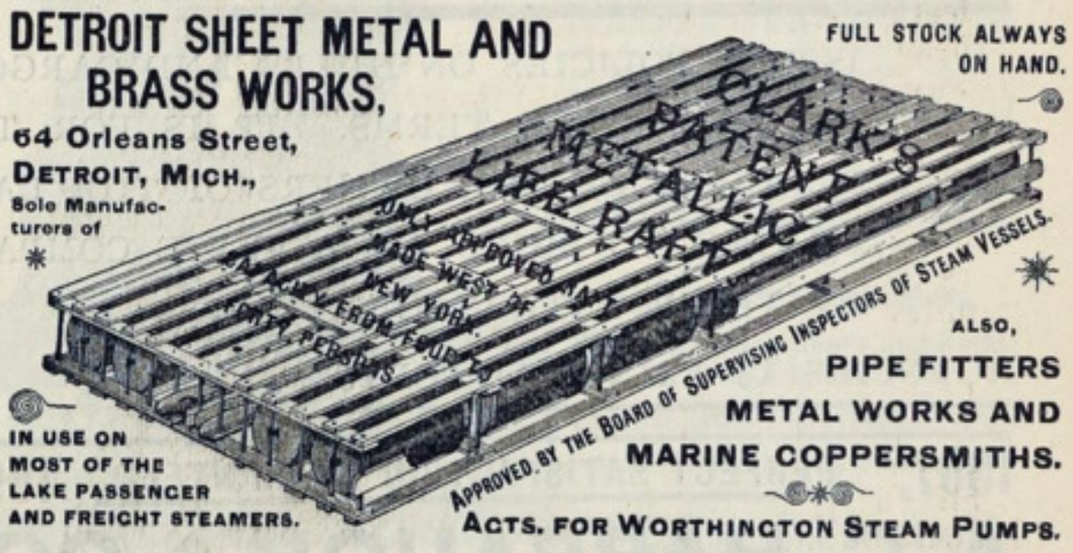
GEO. W. LEARMAN

33 South St., NEW YORK, N. Y.

DETROIT SHEET METAL AND BRASS WORKS,

54 Orleans Street, DETROIT, MICH.,

Sole Manufacturers of



IN USE ON MOST OF THE LAKE PASSENGER AND FREIGHT STEAMERS.

FULL STOCK ALWAYS ON HAND.

APPROVED BY THE BOARD OF SUPERVISING INSPECTORS OF STEAM VESSELS.

ALSO,

PIPE FITTERS METAL WORKS AND MARINE COPPERSMITHS.

ACTS. FOR WORTHINGTON STEAM PUMPS.

GRAPHITE,

(PLUMBAGO or BLACKLEAD.)

Our Mines, Sonora, Mexico, produce the PUREST GRAPHITE in the WORLD.

We Do Not Aduiterate Our Goods in Any Form.

Try our **PAINT** for **Smoke Stacks** and **Boilers.** It will resist intense HEAT and COLD. ACIDS or ALKALIS don't affect it.

Try our **ANTI-FRICTION GRAPHITED LUBRICANTS,** for all classes of machinery.

Try our **PIPE CEMENT** for **Caskets** and **Packing** Pipe and Valve Joints.

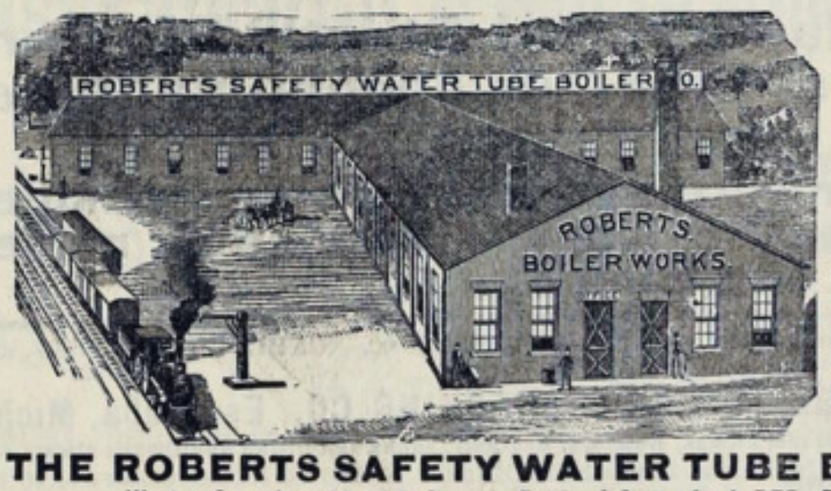
Try our **DRY GRAPHITE** for **Hot Boxes** and all **Bearings.**

Write for particulars and CATALOGUE.

UNITED STATES GRAPHITE CO.

931-939 No. Washington Av., SAGINAW, E.S., MICH.

The Roberts Safety Water Tube Marine Boiler



FOR Yachts, Launches, AND OTHER Steamers.

NEARLY 400 IN USE.

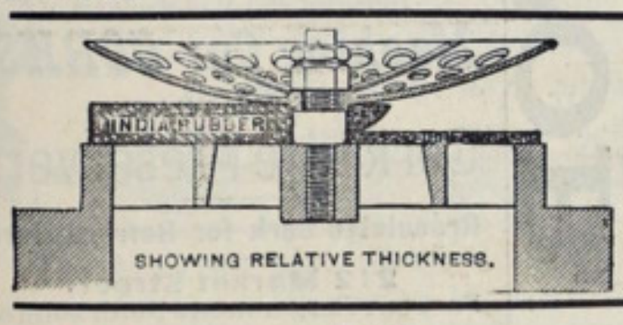
Safe, Reliable, Simple, Light Weight, No Shop Repairs, Small Space. Send for illustrated pamphlet and other reading matter.

THE ROBERTS SAFETY WATER TUBE BOILER CO.

Works Covering 12,000 Square Feet of Ground at RED BANK, N. J.

18 Cortlandt Street, NEW YORK CITY.

Send 75 cents to the MARINE REVIEW for a Binder that will hold 52 numbers.



SHOWING RELATIVE THICKNESS.

VULCANIZED FIBRE VALVES,

For Air, Circulating, Feed and Bilge Pumps.

FAR SUPERIOR to India Rubber or any other material, at one-half the cost.

VULCANIZED FIBRE CO.,

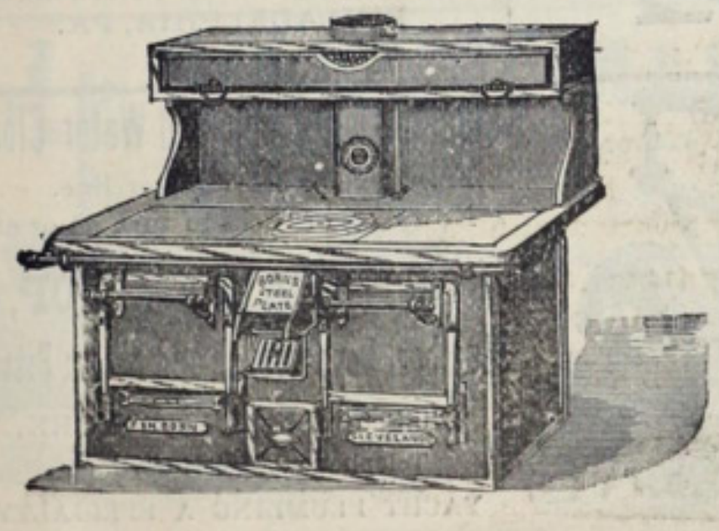
New York Office, 14 Dey St. WILMINGTON, DEL.

H. B. & G. B. BURGER,

MANITOWOC, WIS.

SHIP BUILDERS AND CONTRACTORS.

Dock will admit vessels of 1200 tons, and will be enlarged soon to admit largest vessels on the lakes. Boxes will lift 350 ton vessels. Yard is fitted with a large spar derrick, and a stock of spars always on hand.



BORN STEEL RANGE & MFG. CO.

MANUFACTURERS OF

STEEL PLATE FRENCH RANGES

For Steamships and Vessels, Hotels, Restaurants and Private Families.

Every Range Warranted. Adapted for Hard or Soft Coal, Coke or Wood.

During 1891-92 the following steel steamships have been fitted with these Ranges: Tuscarora, Manola, Marina, Republic, Maruba, Matoa, Norman, Saxon, German, Briton, La Salle, Joliet, J. H. Wade, Western Reserve, Cleveland Ship Building Company's No. 10 and 12, and the Wawatam. In addition to this list, comprising the finest steel steamships on the lakes, the following also have Born's Steel Ranges: Passenger Steamers, City of Detroit and American Eagle; Propellers, Aurora, C. W. Elphicke, Forest City, Yakima, Kalkoska, Missoula, Olympia, J. H. Outhwaite's Raleigh, Spencer, Sitka and Spokane, and the handsome steel steam yacht Peerless.

OWNERS SPECIFY BORN'S RANGES IN CONTRACTS.

BORN STEEL RANGE & MFG. CO., 126 Superior St., Cleveland, O.

REPRESENTED BY

A. T. VAN TASSEL, 250 Detroit St., Cleveland, O.

THE TUITE & REIN MFG. CO., 239 Jefferson Ave., Detroit, Mich.

TALLMAGE BROS., Seneca St., Buffalo, N.Y.

MARINE REVIEW LINER EXCHANGE.

Space under this heading may be used gratis by our advertisers or subscribers to call attention to vessels or any craft, machinery, new or second hand, that they may have for sale. Those wanting machinery of any kind, or wishing to purchase vessels, are invited to take advantage of the same offer. Employers in need of professional men or men who want positions may avail themselves of the opportunities offered. Each item will be limited to three lines. Letters concerning same must mention number attached to item and be addressed MARINE REVIEW, 516 Perry-Payne Building, Cleveland, O.

125—FOR SALE—Three second-hand windlasses and three new yacht windlasses.

126—FOR SALE—32-foot cabin sloop yacht.

127—WANTED—To trade saw-mill, capacity 9,000 hard wood, 40 h. p. engine, etc., 10 acres of land and a house valued at $1,500, for first-class tug or interest in steamer.

128—WANTED—Scow suitable for coasting trade among Apostle islands; boat of about 10 M lumber or 100 cords of wood.

129—WANTED first-class flange fitter and turner up and good boiler makers.

130—WANTED—A first class sheet iron worker and layer-out for boiler shop.

131—FOR SALE—Second hand, one 8,000-pound Manton windlass; one 7,000-pound Thayer and one 1½ inch Perley.

132—FOR SALE—New, one No. 10 Providence for 2 inch chain; one yacht crank windlass, 50 pounds; one steam pump yacht brake windlass; 2, 600 pounds and a yacht centerboard winch, 125 pounds.

133—FOR SALE—Steambarge now building, capacity about 500,000 feet lumber.

"THE MICHIGAN"

ISSUES POLICIES ON HULLS AND CARGOES ON FAVORABLE TERMS. IT IS FOR THE INTEREST OF THE OWNERS OF THE LAKE MARINE TO BUILD UP A HOME COMPANY BY THEIR PATRONAGE.

AGENCIES AT PRINCIPAL PORTS.

1867. PERFECT SATISFACTION GUARANTEED. 1892.

A. G. HARBAUGH & CO.,

34 & 36 River Street, CLEVELAND, O.

Manufacturers of Strictly Pure and Acidless Lard Oils, specially adapted for Steamboat use.

Will furnish Brand free for Ship Chandlers or other dealers who desire their name and address on packages.

I. H. OWEN, President, Chicago. F. H. VAN CLEVE, Sec. Escanaba. CAPT. GEO. BARTLEY, Supt. Escanaba.

ESCANABA TOWING & WRECKING CO., Escanaba, Mich.

Tugs, Lighters, Steam Pumps, Hawsers, Hydraulic Jacks and Diving Appliances always ready.

TUG MONARCH, Engine Compound, Cylinder 16 and 30 inches diameter, 30 inch. Stroke, Steam Pressure Allowed, 125 pounds.
TUG DELTA, Cylinder 20 by 22, Steam Pressure Allowed, 105 pounds.
TUG OWEN, Cylinder 20 by 20, Steam Pressure Allowed, 104 pounds.

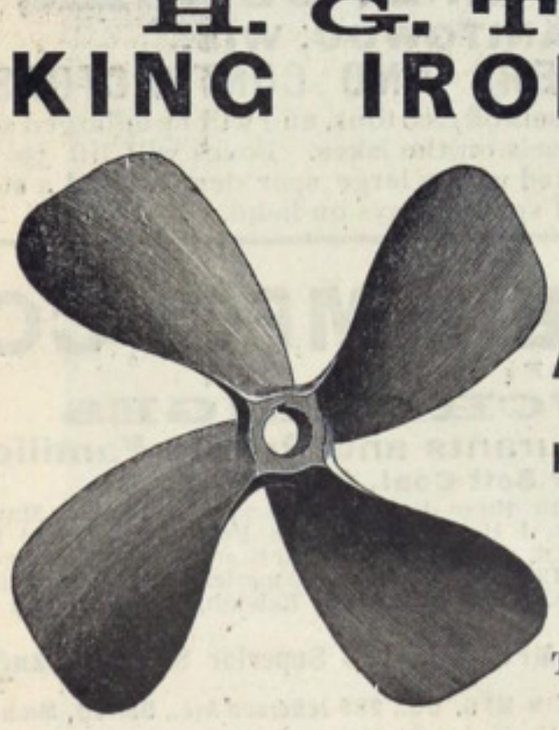
CENTRIFUGAL PUMPS, Seven and Fourteen Inch Suction.

H. G. TROUT,
KING IRON WORKS,

BUFFALO, N. Y.,

MANUFACTURERS OF

TRIPLE EXPANSION, THREE CYLINDER, FORE AND AFT And STEEPLE COMPOUND MARINE ENGINES,



High and Low Pressure Engines, Sectional, Propeller, Tug and Yacht Wheels.

Cowles Aluminum and Manganese Bronze Propeller Wheels.

These Wheels are noted for their extra speed, towing power and proportionate saving of coal.

PRICES QUOTED ON APPLICATION.

P. M. CHURCH & CO.,

SAVINGS BANK BLOCK, SAULT STE. MARIE, MICH.

LEADING DEALERS IN

Ship Chandlery,

Marine Hardware, Paints, Oils, Packings, Cordage, Etc.

FIRST-CLASS COPPERSMITH AND TINSHOP IN CONNECTION.

WANTED AT ONCE.

A Competent Man for Soliciting Orders for Marine Meat Market.

None but experienced men need apply. Good wages guaranteed.

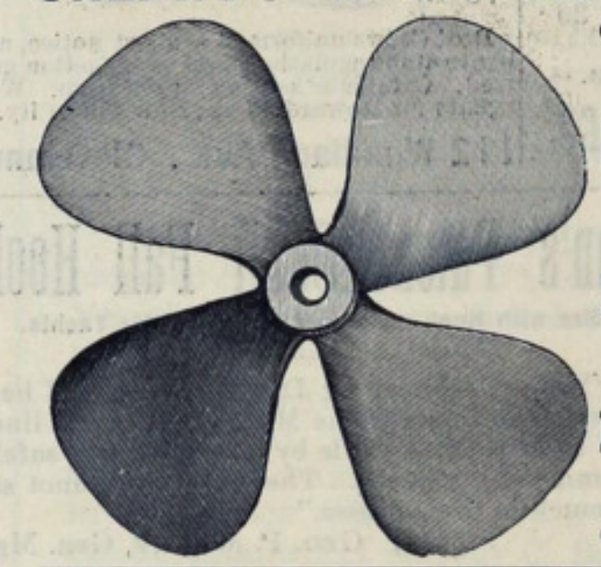
Address, JOHN C. ROEHM, Ashland, Wis.

FOR SALE. 30-Foot Cabin Sloop YACHT.

Yacht built in Brooklyn, N.Y.; winner of 14 prizes; iron keel and cast ballast inside. The cabin and companionway are finished in mahogany. BOAT SAFE AND RELIABLE. For inventory and price, address

MARINE REVIEW, 516 Perry-Payne Building, CLEVELAND, O.

SHERIFFS MANUFACTURING COMPANY,



C. Starke, Pres. W. H. Meyer, V. Pres.
Thos. W. Sheriffs, Manager.

Manufacturers of

MARINE ENGINES,

PROPELLER WHEELS,

Dredge Machinery of Latest Design.

MARINE REPAIRS AT ALL HOURS.

124, 126, 128, 130 & 132 Barclay Street,
MILWAUKEE, WIS.

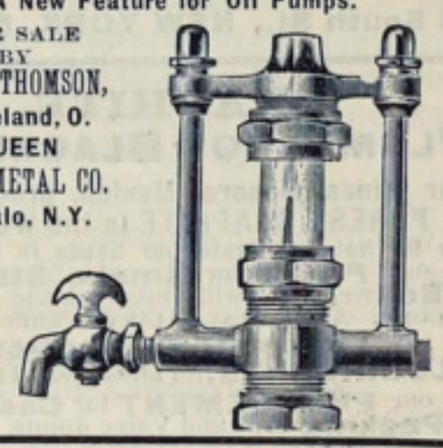
Telephone 163.

Sight Feed Connection.

A New Feature for Oil Pumps.

FOR SALE BY JOHN THOMSON, Cleveland, O. QUEEN CITY METAL CO. Buffalo, N.Y.

PRICE, $10.



Industry File Works

A. & H. COUCH, Props.

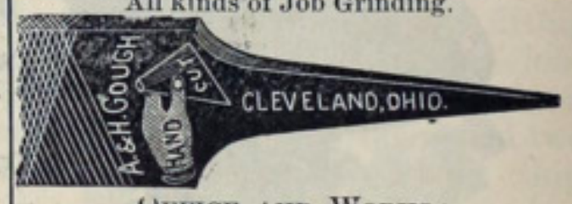
Manufacturers of

FILES AND RASPS

Equal to the best English File.

OLD FILES RECUT.

All kinds of Job Grinding.



Office and Works:

48 Columbus St., Cleveland, O.

C. Gough, Manager. Mention the Review.

YACHTS.

Our Patent Boiler will give dry steam; will carry a steady water-line; will raise **One Hundred** pounds of steam in one-half the time ordinary boilers require. See what experts say:

"Perfect circulation and dry steam."—*Prof. R. H. Thurston.* "Would not do without your improvement in a boat boiler."—*Herman Westinghouse.*

A Working Glass Model may be seen at

B. W. PAYNE & SONS, Elmira, N. Y.
45 Dey St., New York City.

Keystone Cork Works.

ALFRED L. BUTZ,

Importer and Manufacturer of

Machine Cut CORKS,

U. S STANDARD

Cork Life Preservers

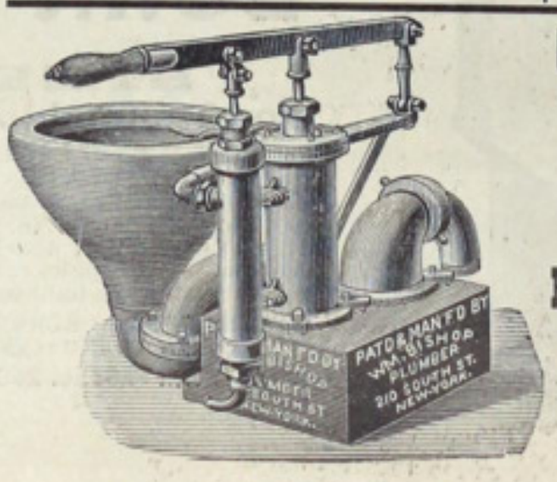
Granulated Cork for Refrigerators.

212 Market Street,

Factory: 829,831 and 833 North Third St.

PHILADELPHIA, PA.

Cable Address: Butz.



Combination Pump and Water Closet

For above or below water line.
No valves or cocks to turn on or off.

WILLIAM BISHOP,

Plumber, Coppersmith and Steam Fitter,

210 South Street, NEW YORK.

Telephone Call, 4811 Cortlandt.

YACHT PLUMBING A SPECIALTY.

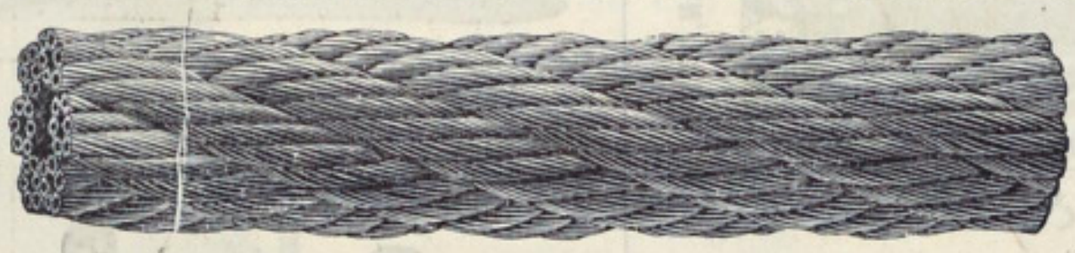
WASHBURN & MOEN MFG. CO.,

Makers of Iron, Steel and Copper,

Manufacturers of IRON, STEEL AND COPPER WIRE for all Purposes.

WIRE ROPE AND CABLE.

Galvanized Iron Wire Rope for Ship's Rigging.
Tiller Rope. Switch Rope.
Copper, Iron and Tinned Sash Cords.
Galvanized Crucible Cast Steel Wire Rope for Yacht's Rigging.



Galvanized Steel Cables for Suspension Bridges.
Standard Copper Cable and Copper Wire Rope.
Transmission and Standing Rope.
Wire Clothes Lines and Picture Cords. Hoisting Rope.

And all the Fixtuees and Appliances required for use with the foregoing.

SEND FOR PRICE LISTS, CIRCULARS AND DESCRIPTIVE PAMPHLETS.

FACTORIES AND ROLLING MILLS: GROVE ST., WORCESTER, MASS. QUINSIGAMOND, MASS. (near Worcester.) WAUKEGAN, ILL. (near Chicago.)

OFFICES AND WAREHOUSES: NEW YORK, PHILADELPHIA, PITTSBURGH, SAN FRANCISCO, CHICAGO, WORCESTER, MASS.

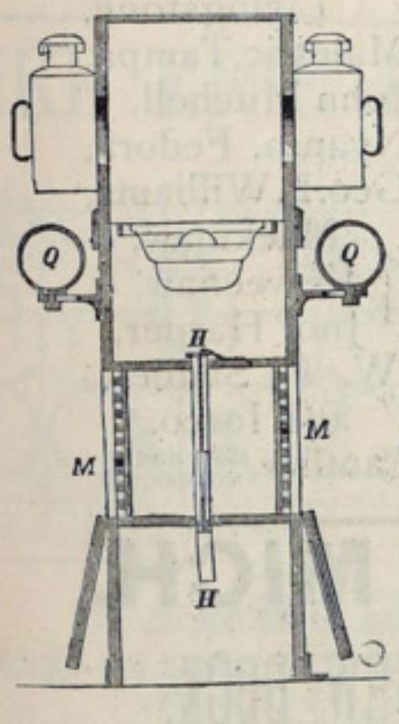
PATENT ADJUSATBLE

BINNACLE and COMPASS

FOR PILOT HOUSES,

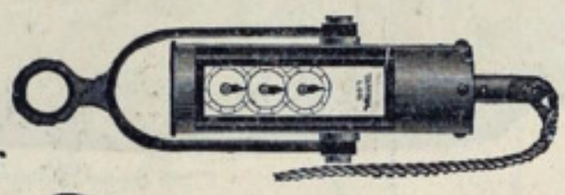
With Directions for Adjustment.

Send for Circular.

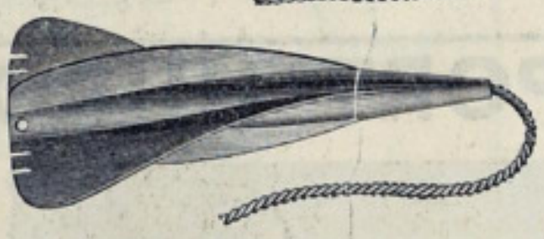


TAFFRAIL LOG,

With Adjustable Rotator

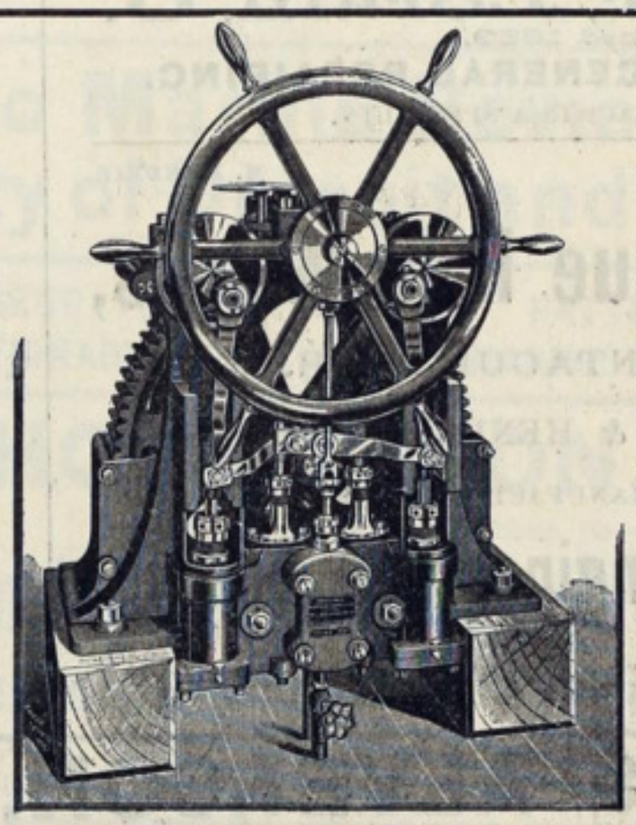


The Best Log in Existence.



MANUFACTURED BY

JOHN BLISS & CO., 128 Front Street, NEW YORK.



No. 4 BECK Steam Steering Gear.

TUG PATTERN—Floor Space 18x36 In.

Changed from steam to hand gear instantly. Rudder moved hard-over, through one o more turns of wheel as desired. Is self-locking. Will cushion any blow on rudder and return to position automatically. All gears are machine cut. Position of Rudder shown by Indicator at all times.

PAWLING & HARNISCHFEGER,

BUILDERS OF

Beck Duplex Feed Engines,
Steam Steering Gears and Hoisting Engines,
Electric, Steam and Hand Cranes,
Special Machinery and Tools.

156-168 Clinton St. Milwaukee, Wis.

Insurance Co. of North America.

INCORPORATED 1794.

LAKE MARINE DEPARTMENT,

GEO. L. McCURDY, Manager, Chicago, Ill.

CHARLES PLATT, President. WILLIAM A. PLATT, Vice-President.
EUGENE L. ELLISON, 2d Vice-Pres't. GREVILLE E. FRYER, Sec'y & Treas.
JOHN H. ATWOOD, Assistant Secretary.

Capital, paid up in cash	$3,000 000.00
Assets	9,278,220.00

SAMUEL WOODHOUSE,

(Successor to Ohio Chain Co.)

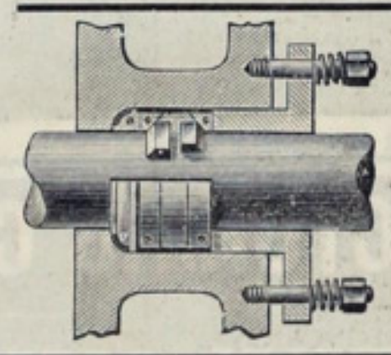
Manufacturer of Crane, Cable, Dredge and Crown Proof

COIL CHAINS, SAFETY CHAINS

AND COAL MINE CHAINS MADE TO ORDER.

Chains of Every Description Made to Fit any Wheel or Machine. First Premium, Siver Medal, awarded at Northern Ohio Fairs of 1870, 1872 and 1873.

OFFICE and WORKS, NEWBURGH, O.

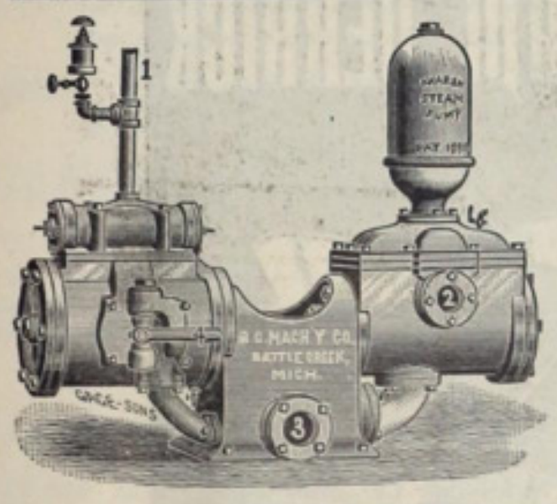


Forrest's Silver Bronze Packing.

Applied to any stuffing box, without disconnecting. Steam, air and water tight without the aid soft packing, under the highest steam pressure and piston velocity, automatic, admits of excessive vibration, lashing and crowding of the rod, does not bind, economical, **guaranteed** to outlast all other packings. Used by the largest iron works, steamships and electric light companies for years all over the world. References. Agents wanted everywhere.

Address, 115 Liberty Street, New York City.

The MARINE REVIEW and the MARINE ENGINEER, London, one year for $4. Write the MARINE REVIEW.



MARSH STEAM PUMP,

Absolute Actuation and Regulation Without Use of Tappets, Levers or other Mechanical Connections.

FOR MARINE AND STATIONARY BOILERS.

Smaller Sizes With or Without Hand Pumping Attachment.

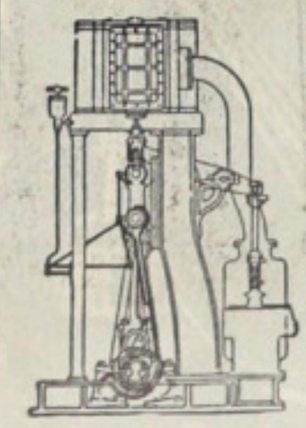
Exhaust Returned to Boiler. Heats Feed Water Forty to Fifty Degrees, according to tests made by Prof. M. E. Cooley, of the University of Michigan.
Steam Valves Actuated by Direct Boiler Pressure.

Has Fewer Wearing Parts than ANY OTHER Steam Pump.

For Circulars and Prices, address

STRONG, CARLISLE & TURNEY, Cleveland, O. STANNARD & DILLON, Chicago, Ill.
DETROIT SHEET METAL & BRASS WORKS, Detroit, Mich. H. P. TOBEY, Toledo, O.
SMALLEY BROS. & CO., Bay City, Mich. CARLETON & COLE, Port Huron, Mich.
or BATTLE CREEK MACHINERY CO., Manufacturers, Battle Creek, Mich.

THE O'CONNELL GREASER,



During the past three years hundreds of marine engines of from 2,000 to 4,000 h. p. have been served, as well as high speed electric light engines.

RESULTS:

Sure control of Crank Pin.
Stoppage of Lard Oil account.
Perfectly clean Engine

O'Connell & Cahill,
Manistee, Mich.

Dark lines indicate apparatus.

Patterson's Nautical Dictionary, $5.00. Order from the Marine Review, Cleveland, O.

CON. STARKE. JOS. WOLTER. AUG. RIEBOLDT.

RIEBOLDT, WOLTER & CO.,

SHIPBUILDERS,

SHEBOYGAN, WIS.

FLOATING DRY DOCK WILL LIFT VESSELS OF 400 TONS.

HAYES, HEINE & STACK,

MANUFACTURERS OF

MATTRESSES, PILLOWS AND BEDDING.

We make a specialty of fitting out vessels. Send for Prices.

70 EAST RIVER STREET, CLEVELAND, OHIO.

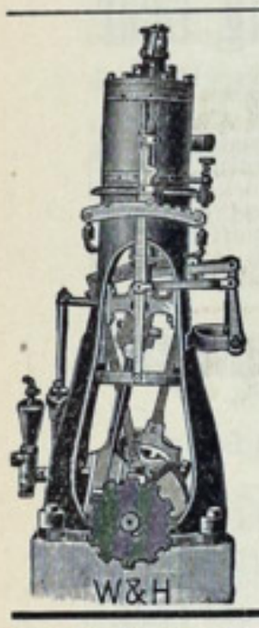
H. D. ROOT, Lorain, O.

Established 1853.

SHIPBUILDING AND GENERAL REPAIRING.

TUGS AND STEAM YACHTS A SPECIALTY.

J. D. WILSON. M. HENDRIE.



Montague Iron Works,

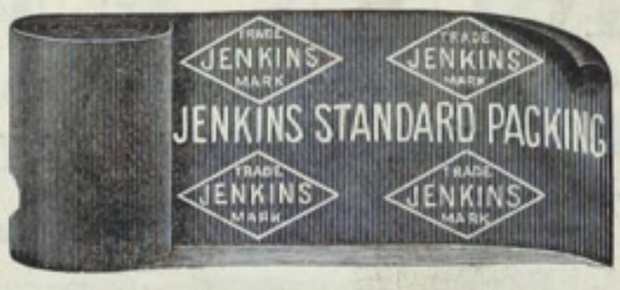
MONTAGUE, MICH.

WILSON & HENDRIE, Proprietors.

MANUFACTURERS OF

Marine Engines and Boilers,

AND GENERAL MILL MACHINERY.



INCREASED SALES

Show that our customers appreciate the value of improvements made in

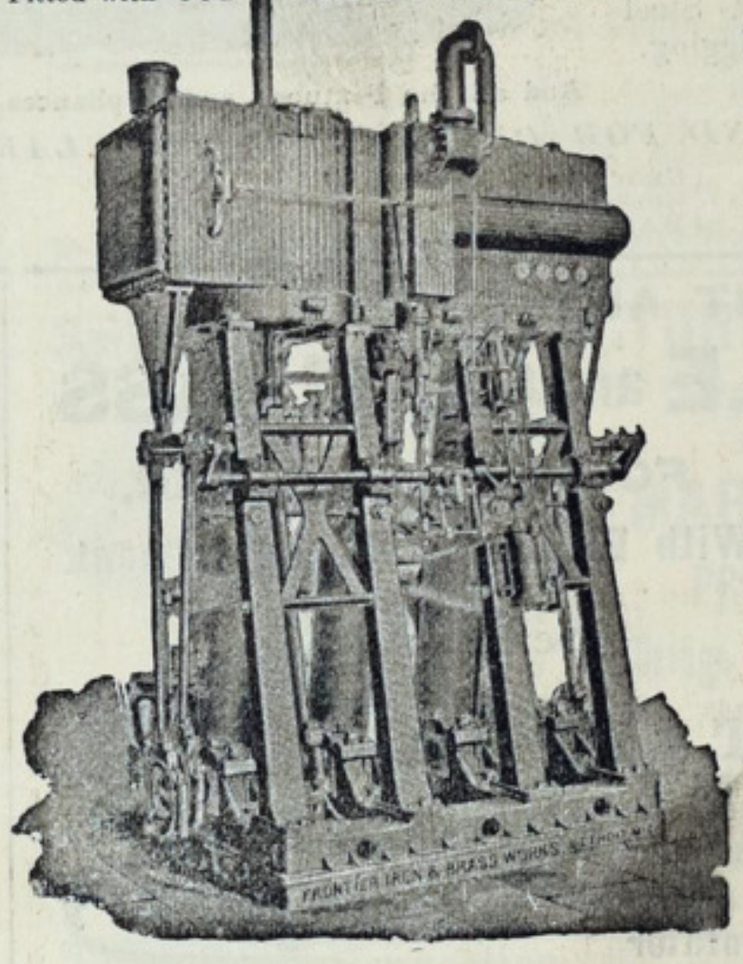
JENKINS PACKING.

It can be used again and again. Does not ROT or BURN out Have you tried it recently? If not, DO SO! Look for "Trade Mark."

JENKINS BROS.,
New York, Philadelphia, Boston and Chicago.

THE FRONTIER IRON WORKS,

Fitted with "JOY 'PATENT VALVE GEAR.



DETROIT, MICH.,

Builders of

TRIPLE EXPANSION

and all kinds of

Marine Engines

Engines furnished for Steamships:

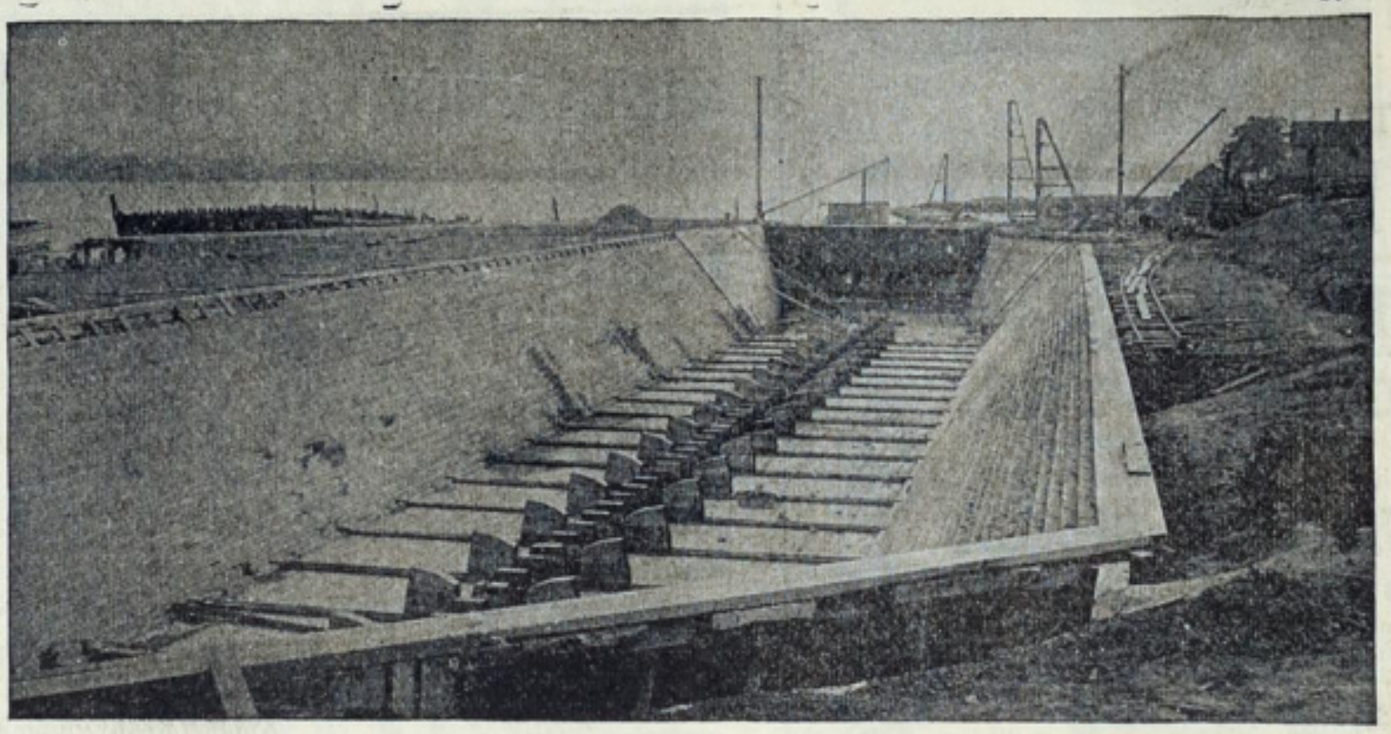
T. W. Palmer,
Livingstone,
Majestic, Tampa,
John Mitchell,
Nyanza, Fedora,
Geo. F. Williams,
Mackinaw,
Keweenaw,
Jno. Harper,
W. F. Sauber,
and Iosco.
Panther, (fore and compound)

DUNFORD & ALVERSON, PORT HURON, MICH.

SHIP BUILDING.

DOCKING,
REPAIRING,
SPAR MAKING.

DOCK HAS PIT TO SHIP RUDDERS.



NEW DOCK.

(Largest on the Lakes.)

Length: 400 feet.

Width: on top 95 feet.
bottom 55 "
at gate 62 "

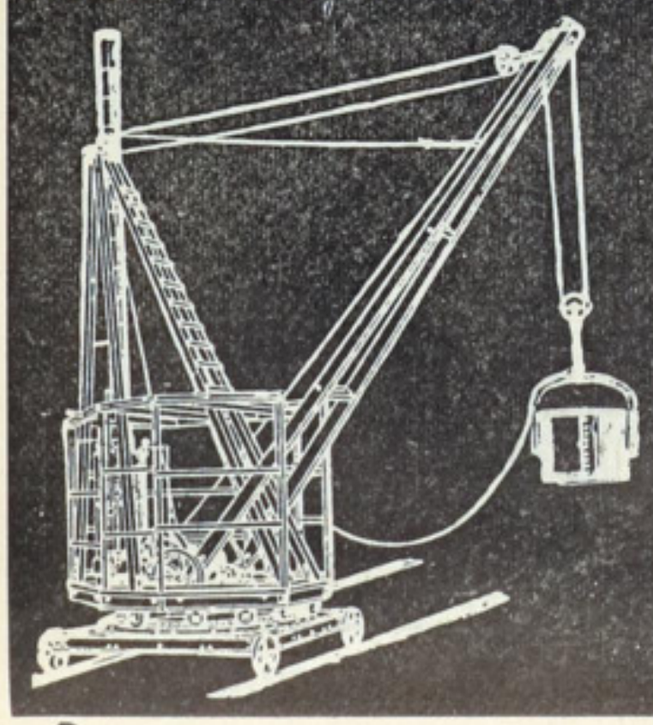
Depth: to floor 20 feet.
to sill 18 "
on blocks 16 "

Nearest Modern Dock to the SAULT or MACKINAW.

McMYLER MANUFACTURING CO., 180 COLUMBUS STREET, CLEVELAND, O.

SOLE MAKERS OF THE

McMYLER PATENT REVOLVING STEAM DERRICK



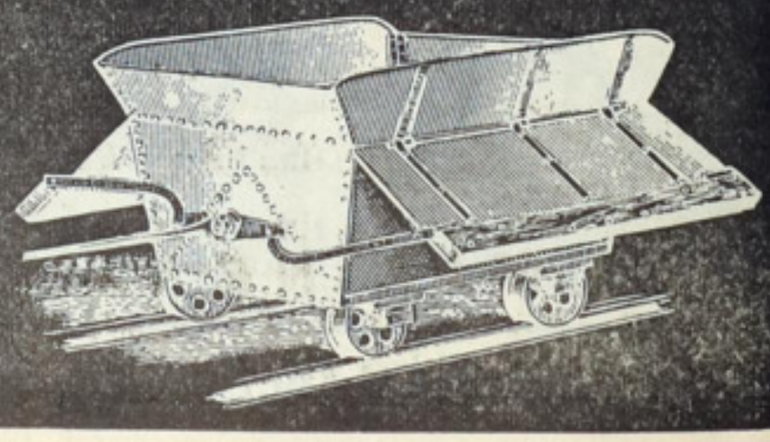
FOR HANDLING COAL, ORE AND COARSE FREIGHT OF ANY DESCRIPTION.

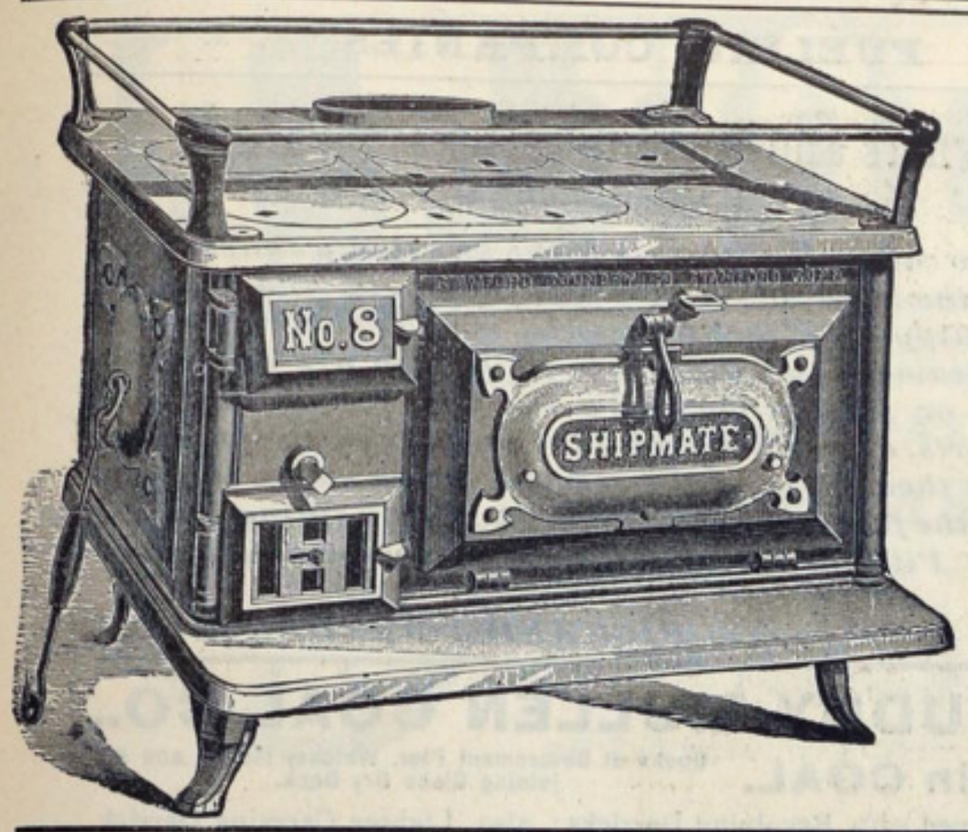
This Derrick can Lift Load, Alter the Radius of Boom, Swing in Either Direction at Will of Operator, and can Propel Itself on Track any Desired Distance.

BUILT FOR ANY CAPACITY WANTED

BUILDERS OF

CONVEYORS, COAL BUCKETS, ORE BUCKETS AND DUMP CARS.





NAMES

Is the title of an interesting little book with the names and home ports of vessels of almost every class that can be mentioned.

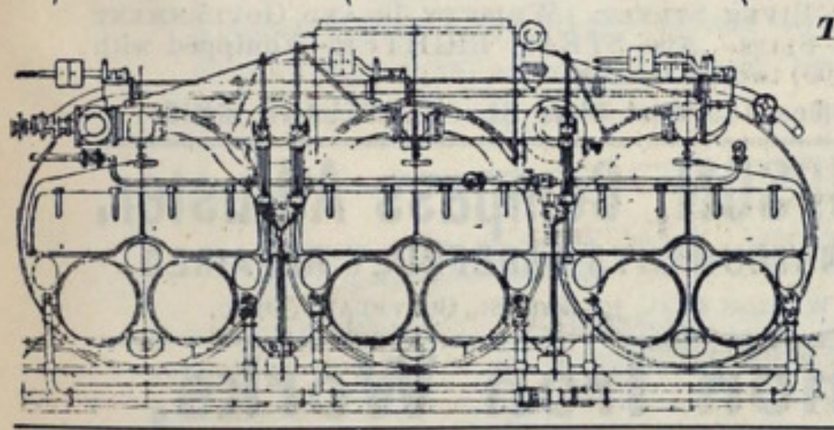
The part that interests us is that these vessels have all bought our caboose ranges.

If you would care to look at it, we will send it postpaid.

THE STAMFORD FOUNDRY CO., Stamford, Conn.

Send 25 cents in stamps to Marine Review for Photo-Gravures of Virginia, City of Detroit and Wadena.

LAKE ERIE BOILER WORKS.



The Best Equipped plant in America for the manufacture of modern Marine Boilers.

—o—

BUFFALO, N.Y.

FARRAR & TREFTS,

Propeller, Yacht & Tug Wheels,

MARINE AND STATIONARY

ENGINES AND BOILERS.

REPAIRING PROMPTLY ATTENDED TO.

54 to 66 Perry Street, BUFFALO, N. Y.

Drilling Boilers and Engines a Specialty

JOHNSTON BROTHERS,

Ferrysburg Steam Boiler Works,

FERRYSBURG, MICH.

Marine, Locomotive and Stationary Boilers,

Tanks and Sheet Iron Work.

REPAIRS PROMPTLY ATTENDED TO.

OILS

STOCK & CO.

44 and 140 Jefferson Av. and Woodbridge St., DETROIT, MICH.

Marine Oils a Specialty.

High Grade Cylinder, Engine and Dynamo

DOPES AND GREASES.

C. H. McCUTCHEON,

(Successor to SAMUEL McCUTCHEON.)

Copper, Tin and Sheet Iron Manufactory,

Steamboat and Engineers' Supplies.

All kinds of Brass Cocks, Globe Valves and Couplings, &c. Iron Pipe and Fittings, and Mill Supplies. Rubber Belting, Hose and Packings, Springs, Valves, &c., Leather Belting and Usudurian Packing.

Telephone No. 68. No. 18 Ohio Street BUFFALO, N. Y.

ERIE RUBBER CO.,

ERIE, PA.,

—MANUFACTURERS OF THE—

KEYSTONE MARINE VALVE.

These RED, AIR AND FOOT VALVES, are the Best Rubber Valves made.

☞SEND YOUR ORDER FOR "PATTERSON'S NAUTICAL DICTIONARY" ($5) TO THE "MARINE REVIEW" AT ONCE.

PHOENIX IRON WORKS

—MANUFACTURERS OF—

Modern Marine Engines and Boilers

1223 to 1231 Fourth St., PORT HURON, MICH.

Telephone Nos. { Office, 15. Residence, 192.

Special Attention Given to Repairs.

DULUTH DIRECTORY.

THE CLYDE IRON COMPANY,

OFFICE AND WORKS: 302, 304, 306 & 308 Lake Avenue, South, DULUTH, MINN.

R. A. WEBSTER, Supt.

Machinists, Foundrymen, Blacksmiths and Steam Fitters. Special attention given Marine Work. Ship Chandlery & Mill Supplies, Packings, Waste, Oils, Greases, Boiler Purgers, etc.

MANISTEE IRON WORKS CO.

Manistee, Mich.,

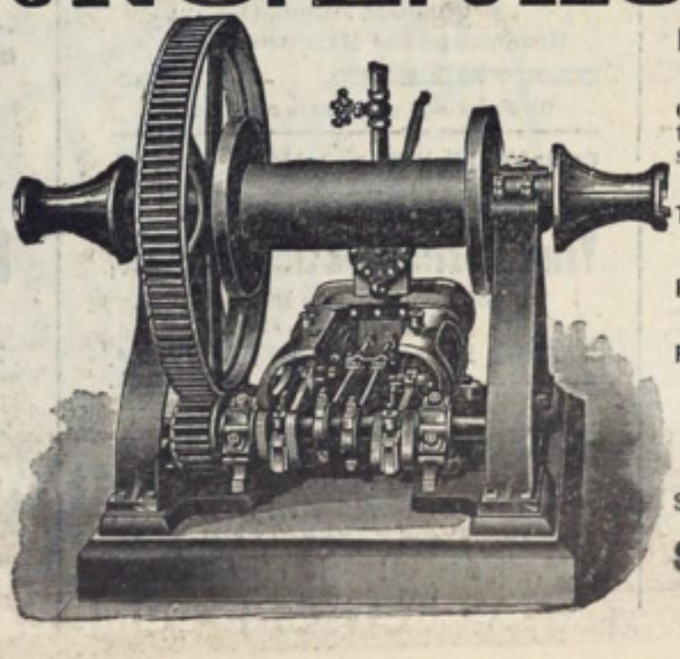
MANUFACTURERS OF

Marine and Stationary Engines and Boilers.

Triple Expansion, Fore and Aft, and Steeple Compound Engines, and High Pressure Engines,

General Mill Machinery and Salt Well Outfits.

JNO. L. JACKSON



Builder of DUPLEX HOISTING AND DECK ENGINES.

Completely under control of throttle, reverse without link, stopped, started or reversed instantly, will hold load without brake.

These Engines can be arranged for Driving Rolls and many other purposes.

PLAIN, FINISHED and AUTOMATIC

ENGINES,

From Heavy Patterns at Moderate Prices.

Vertical, Horizontal, Marine and Locomotive

BOILERS,

Strictly First-Class & Highest Test.

Saginaw, Mich.

Send for Circulars and Prices.

BROKERS & ADMIRALTY ATTORNEYS.

H. D. GOULDER. O. C. PINNEY.
GOULDER & PINNEY,
LAWYERS AND PROCTORS IN ADMIRALTY,
CLEVELAND, O.

ROGER M. LEE. DUANE H. TILDEN.
LEE & TILDEN,
Proctors in Admiralty.
Telephone 1191. 504 Perry-Payne Bldg., CLEVELAND, O.

H. R. SPENCER,
ATTORNEY AT LAW and PROCTOR IN ADMIRALTY.
218 Superior St., DULUTH, MINN.

C. E. KREMER, *Attorney and Counselor-at-Law and Proctorin Admiralty.*
Rooms 14, 15 and 16, Bryan Block, - - 164 La Salle St., CHICAGO. ILL.

CAPT. R. T. LEWIS. S. V. GILBERT.
LEWIS & GILBERT,
Telephone 140. VESSEL AGENTS & MARINE INSURANCE.
36 and 37 Exchange Bulding, DULUTH, MINN.

JOHN C. FITZPATRICK. JOHN MITCHELL. JOHN F. WEDOW.
MITCHELL & CO.,
Vessel and Insurance Agents,
508-509 Perry-Payne Building, CLEVELAND, OHIO.
Office Telephone, 767. Residence, John Mitchell, 3506. J. C. Fitzpatrick, 2305.

CLEVELAND BOOK BINDERY,
196 Seneca St., CLEVELAND, O.
BLANK BOOKS
In Stock and Made to Order.
BINDING
Magazines and Periodicals a Specialty.
T. G. Crosby, C. A. Macdonald, J. J. Rardon.
CROSBY, MACDONALD & CO.
General Insurance Agents,
RIALTO BUILDING, CHICAGO, ILL

H. S. LORD. J. H. NORTON.
LORD & NORTON,
Attorneys-at-Law, Proctors and Advocates in Admiralty,
DULUTH, MINN.

White, Johnson & McCaslin,
ATTORNEYS-AT-LAW,
—AND—
Proctors in Admiralty,
26-27 Blackstone Building,
CLEVELAND, - OHIO.

JOSIAH COOK, ATTORNEY,
And Counselor at Law and Proctor and Advocate in Admiralty.
Office, Nos. 12. & 14 Spaulding's Exchange, BUFFALO, N. Y.
Special attention given to all U. S. court and admiralty business in all its branches and the collection of Seamen's wages.

THOS. WILSON,
MANAGING OWNER
WILSON'S TRANSIT LINE.
Gen. Forwarder.
Freight and Vessel Agent.
CLEVELAND, O.

WARNER & CO.,
Vessel Agents and Brokers,
Nos. 511 & 512 Perry-Payne Building,
Superior Street, CLEVELAND, O.

C. F. Palmer. Chas. Hutchinson. P. J. Minch.
PALMER & CO.,
Vessel Owners and Agents,
(John H. Palmer and Jonn T. Hutchinson, Associates.)
Perry-Payne Bldg., Cleveland, O.

W. A. HAWGOOD. C. C. CANFIELD.
HAWGOOD & CANFIELD,
Vessel Agents and Marine Insurance,
604-605 Perry-Payne Bldg.,
Cleveland, - Ohio.
Telephone No. 2395.

W. L. Windom.
ATTORNEY-AT-LAW AND PROCTOR IN ADMIRALTY
Marine Notary.
ASHLAND, WIS.

C. W. ELPHICKE. A. L. FITCH. JAS. A. MYERS.
C. W. ELPHICKE & CO.,
Vessel Owners and Agents, Marine Underwriters,
Rooms 10, 11 and 12, Wheeler Block, 6 and 8 Sherman St. CHICAGO.
Telephone 1194.

E. T. HITCHCOCK,
Average Adjuster,
184 Main St.,
BUFFALO, N.Y.

Moore, Bartow & Gilchrist,
Ship Brokers & Agents,
Nos. 611 & 612 Perry-Payne Building,
Superior Street, Cleveland, O.

H. J. WEBB & CO.
SHIP BROKERS, VESSEL OWNERS and AGENTS,
Established in 1856. H. J. Webb & Co. will charter vessels for the lake trade. Special attention given to chartering vessels in the Lake Superior Iron Ore trade, both for the season and single trip.
No. 606 & 607 Perry-Payne Building, Cleveland, O. Office Telephone No. 338, Residence No 3228.

J. T. ROSE. FRANK B. LAZIER.
ROSE & LAZIER,
Vessel Agents and Brokers, and Marine Insurance,
16 Board of Trade,
DULUTH, - - MINN.

H. F. SPRAGUE,
Marine Artist,
Studio at Huron, O.
Headquarters at MITCHELL & CO.'S
CLEVELAND, - OHIO.
Oil Paintings of Vessels a Specialty.

Capt. LYMAN HUNT. JAMES P. HUNT.
L. HUNT & SON,
Vessel Brokerage and Marine Insurance,
Room 9, Exchange Building.
Telephone No. 522.
No. 202 Main St., BUFFALO, N.Y.

Established 1857.
THOMAS MARKS & CO.,
Merchants,
Forwarders and Shipowners,
Port Arthur, Canada.
N. B.—Special attention given to chartering vessels.

FUELING COMPANIES.

To Owners and Masters of Steam Barges.

—:o:—

We beg to call your attention to the fact that we have steam lighters at the ports of Cleveland, Ashtabula and Buffalo, specially equipped for fueling vessels, which enable us to run alongside steamers and fuel them while they are unloading during day or night time. We also have fueling docks at the above ports, at which we can take care of vessels not desiring to avail themselves of the services of the steam lighters. We shall in the future, as in the past, handle nothing but the best grade of Pittsburg coal, and respectfully solicit your patronage.

PICKANDS, MATHER & CO.

THE CUDDY-MULLEN COAL CO.,
Dealers in COAL.
Docks at Government Pier, Whiskey Island, and Adjoining Globe Dry Dock.
All fully equipped with Revolving Derricks; also, Lighter Carrying Derrick, and One Hundred Two and One-Half Ton Buckets.
Main Office, 81 Perkins Building, East Side of Main Street Bridge.
Dock Office, 127 West River St., Cleveland, O. Telephone No. 8.
Boats Coaled Day and Night. Docks at Amherstburg.

Ohio & Pennsylvania Coal Co.
FUEL DEPARTMENT.
MINERS AND SHIPPERS,
Youghiogheny and Ohio Steam Coals. Steamboats, Tugs, etc., Coaled day or night, DOCKS FOOT WEST RIVER STREET. WHISKEY ISLAND GOVERNMENT PIER and C. & P. R. R. SLIPS. Also STEAM LIGHTER—Equipped with Revolving Derrick and (100) two ton buckets.
Telephone 1608. Office, 130 West River St., CLEVELAND, OHIO.

GEO. A. SIMPSON, Compass Adjuster.
ALL NAUTICAL INSTRUMENTS CAREFULLY REPAIRED.
Office with UPSON, WALTON & CO., 161 River St., CLEVELAND, OHIO.

McKinnon Iron Works,
Machinists, Engine Builders, Shipsmiths and Boiler Makers.
ASHTABULA HARBOR, O.
—DEALERS IN—
Engineers' Supplies, Lubricating and Burning Oils, Steam, Deck and Suction Hose, and Air Pump Valves.
We carry Largest Stock of these goods to be found between Cleveland and Buffalo, and sell at the lowest price. We solicit your trade while at this port

PAUL OLSON,
Manitowoc, Wis.
Ship Chandlery and Sail Loft,
PAINTS AND OILS. FULL LINE OF OIL-SKINS ON HAND.
AGENT FOR JOS. P. MANTON'S STEAM STEERER.

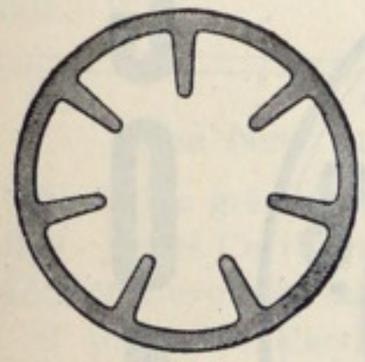
T. S. & J. D. NEGUS
Have the largest and finest stock of Nautical Instruments and Charts in the United States.
Estimates given for
Outfits of Steamers and Pleasure Yachts.
Compass Adjusters.
Send for Catalogue and Almanac.
140 Water Street, NewYork City.
Every attention given to Trade orders.

Special Agents for the Celebrated Ritchie Compass.

S. F. HODGE & CO.

MARINE ENGINES,
PROPELLER WHEELS,
DECK HOISTERS,
MARINE REPAIRS.

320 ATWATER STREET,
DETROIT, MICH.

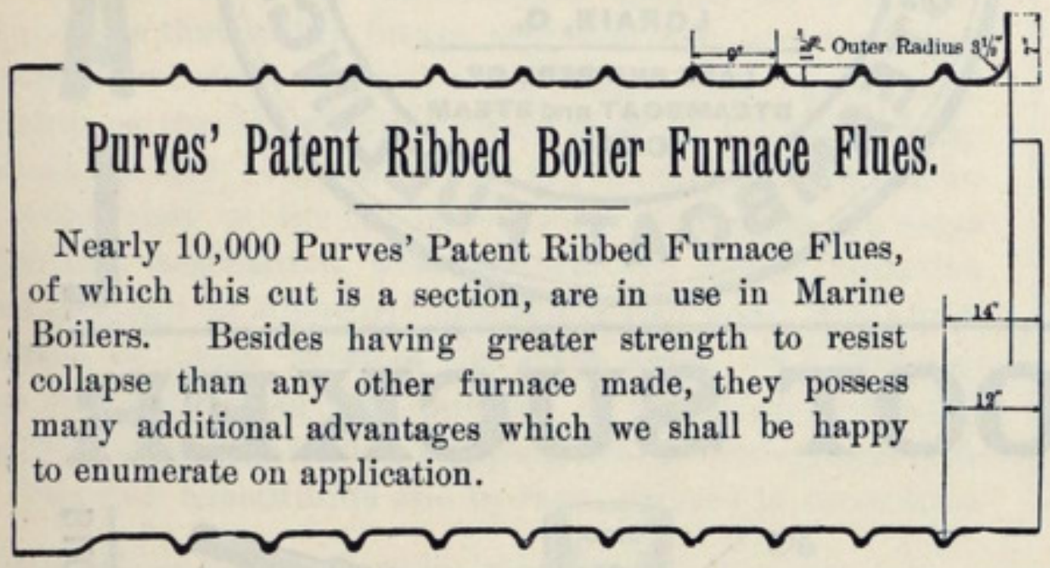


SERVE'S PATENT

Ribbed Boiler and Stay Tubes

Show an average economy in fuel of 15 per cent. In steamers, this means not only so much saving in cost of coal, but additional freight capacity.

☞Full particulars on application.



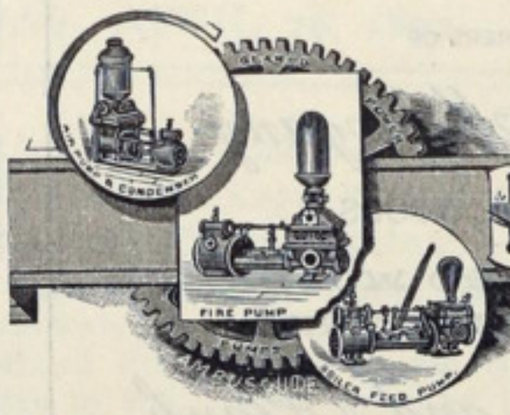
Purves' Patent Ribbed Boiler Furnace Flues.

Nearly 10,000 Purves' Patent Ribbed Furnace Flues, of which this cut is a section, are in use in Marine Boilers. Besides having greater strength to resist collapse than any other furnace made, they possess many additional advantages which we shall be happy to enumerate on application.

CHARLES W. WHITNEY,

Representing Messrs. JOHN WILLIAMS & Co., Liverpool, Sole Agent for the United States and Canada.

81 & 83 FULTON STREET, NEW YORK.



KNOWLES Steam Pump Works.

93 Liberty St. NEW YORK. | 113 Federal St. BOSTON.

IMPROVED PUMPING MACHINERY For Every Class of Work. | Send for New Illustrated CATALOGUE

THE CONDIT FULLER CO.

BAR IRON, SHEET IRON, PLATE IRON, PIG IRON,
BOILER TUBES, BOILER RIVETS, PLATE STEEL,
CAS PIPE, BOAT SPIKES,
CLINCH RINGS, CLEVELAND, O. STEEL NAILS.

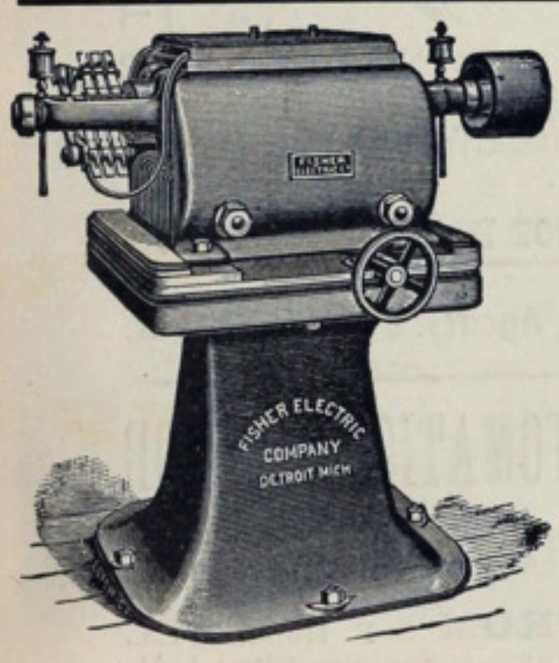
1850. **J. F. PENNRICH,** 1892.

Manufacturer of all Grades of

MATTRESSES, PILLOWS & BEDDING,

MARINE AND HOTEL WORK A SPECIALTY.

Telephone 1691. Nos. 512 to 516 Lorain St., CLEVELAND, O.



THE INCANDESCENT LIGHT

Is the only safe means of illuminating Passenger, Freight or Excursion Steamers. All other illuminants are dangerous. The Fisher system is Automatic in its operation, perfect in every detail, and does not require a skilled expert.

FISHER ELECTRIC CO.

183, 185 & 187 Larned St., DETROIT, MICH.

Atlas Engineering Co., Limited,

of BOSTON, MASS.,

Civil and Mechanical Engineers and Architects,

AND DESIGNERS OF

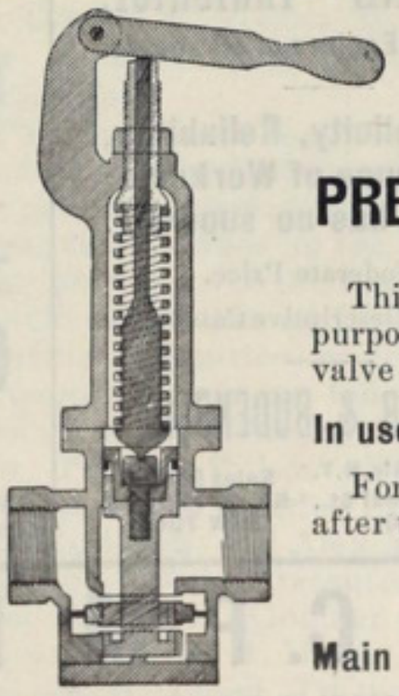
Docks, Warehouses and Mills, Freight and Passenger Stations, Industrial Buildings of every description and Special Structures. Superintendents Construction. Estimates Furnished.

Electric Light and Power Plants. Electric Broad and Narrow Guage Railroads. High Grade of Efficiency. Permanent Electrical Wiring. ☞CORRESPONDENCE SOLICITED.

☞Work Undertaken in ANY Part of America.

Office, 258 Washington St., BOSTON.

P.O. Address, 3492 (P.O.Box), Boston, Mass.



"It does its work"

BURTON'S PRESSURE REDUCING VALVE.

This cut shows the valve designed for marine purposes. The lever is for the purpose of forcing valve open if it should become dirty.

In use on twenty of the finest steel steamers.

For price list and letters telling how it works after two years' use, write

C. H. BURTON,

Main and Center Streets, CLEVELAND, O.

Send 75 cents to the MARINE REVIEW for a binder that will hold 25 numbers.

THE KING BRIDGE CO.

CLEVELAND, O.,

Iron and Steel Bridges, Girders, Buildings and Structural Work of all kinds, Hoisting and Conveying Machinery for Handling Ore, Coal, &c.

The Martin-Barriss Co.

IMPORTERS AND MANUFACTURERS OF

Mahogany, White Mahogany,

AND ALL NATIVE CABINET WOODS.

HIGH GRADES OF KILN DRIED WOODS FOR CABIN WORK AND INSIDE TRIM.

White Oak Timbers and Plank

CONSTANTLY ON HAND AND SAWED TO ORDER ON SHORT NOTICE.

654 Seneca Street, Cleveland, Ohio.

THE MARINE BANK CO.

CLEVELAND, OHIO.

CAPITAL, $300,000.

Incorporated under the laws of Ohio in 1891.

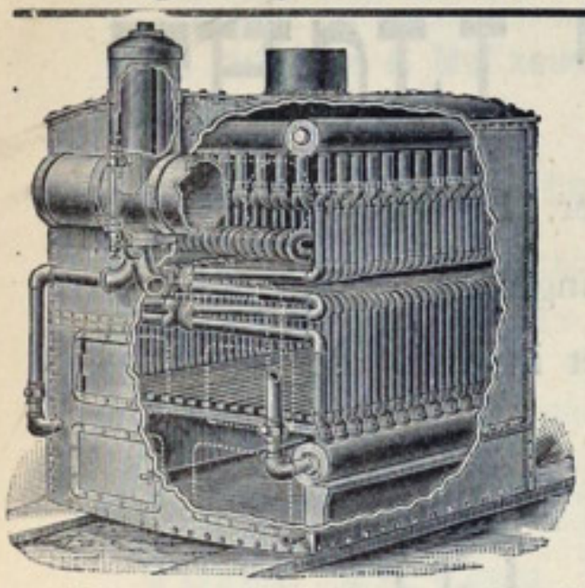
Successor to E. B. HALE & CO., Established in 1852.

DIRECTORS:

W. H. BARRISS, President. HENRY C. RANNEY, Vice-Pres't.
W. B. HALE, Cashier.

MARTYN BONNELL. C. E. BURKE.
THOS. FITZPATRICK. THOS. H. WHITE.

We give special attention to Marine Business.



ALMYS'S PATENT SECTIONAL WATER TUBE BOILERS

FOR

:: MARINE and ::

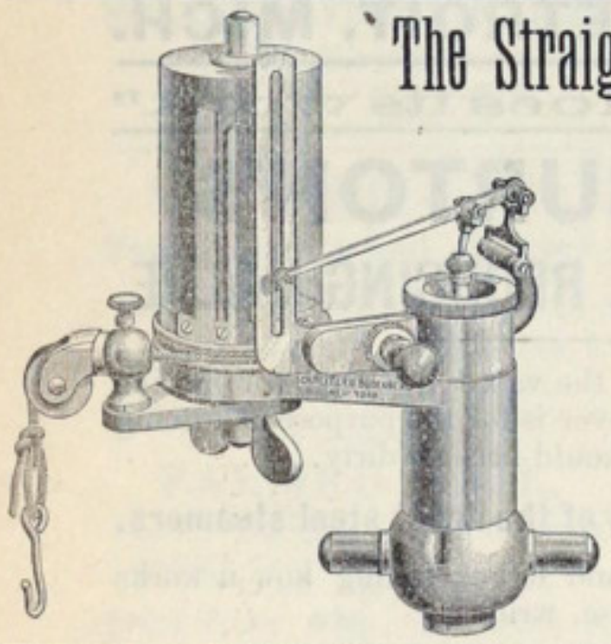
STATIONARY WORK

Manufactured by

ALMY WATER TUBE BOILER CO.

Providence, R.I.

"The use of boilers of the coil type in vessels of small displacement and enormously large power is already a necessity, and it will not be many years before their use will be general in all steam vessels."—Engineer-in-Chief Melville, U. S. N.



The Straight "LYNE" Indicator,

Adapted for Engines of all speeds.

For Simplicity, Reliability, Excellence of Workmanship, it has no superior.

Sold at a Moderate Price.

Send for Descriptive Catalogue.

SCHAFFER & BUDENBERG,

Works: Brookly, N.Y. **No. 18 So. Canal St., CHICAGO.**

Sales Rooms: No. 40 John St., NEW YORK.

COAL

STANLEY B. SMITH & CO.

OPERATING

SMITH'S COAL DOCK

DETROIT, MICH.

POCKET FUELING AND LOW DOCK,

ALSO

LORAIN COAL DOCK,

LORAIN, O.

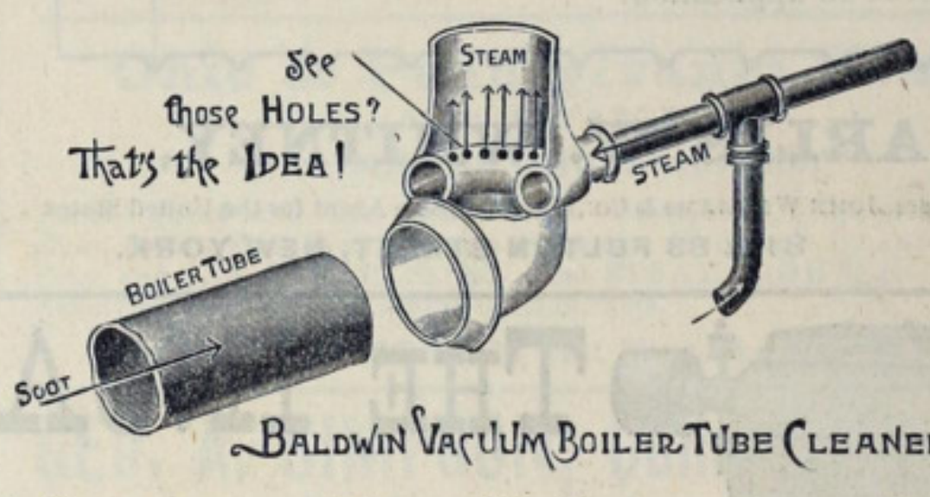
LAKE SHIPPERS OF STEAMBOAT and STEAM COAL.

STEAMBOAT FUELING.

COAL

SOOT SUCKER

Sucks Soot From Tube.



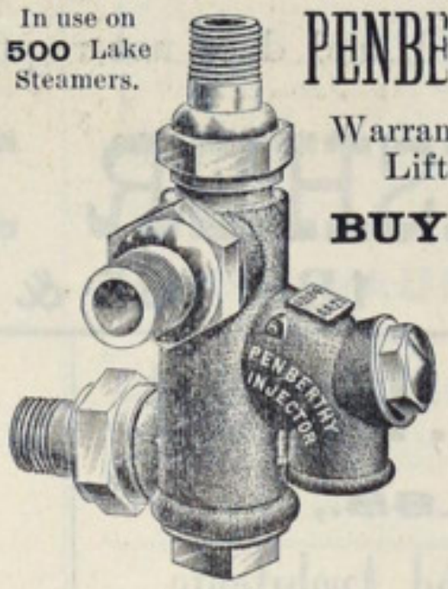
Baldwin Vacuum Boiler Tube Cleaner

Blows It Out Stack.

No Steam in the Tube. No Soot in Boiler Room.

THE OLIVER P. CLAY CO., Sole Sales Agents, CLEVELAND, O.

In use on **500** Lake Steamers.



PENBERTHY AUTOMATIC INJECTOR

Warranted Re-Starting, Absolutely Automatic, Lifts 20 Feet, Works 25 to 150 or 200 Pounds.

BUY THEM FROM S. F. Hodge & Co., Detroit; Clements & Son, Bay City; J. H. Ruckel & Co., Buffalo; Scott Valve Co., R. J. Dillon & Co. or Marinette Iron Works, Chicago; C. H. Presley, Cleveland; Shaw, Kendall & Co., Toledo; Erie City Iron Works, Erie; Rundle, Spence & Co., Milwaukee, or

PENBERTHY INJECTOR CO.

7th and Abbott Streets,

DETROIT, MICH.

OMAR D. CONGER. CHILION P. CONGER.

Conger & Conger, Attorneys and Counsellors at Law,

No. 45 Corcoran Building, Washington, D. C.

We make a specialty of all Marine and Shipping Business before the Treasury Department and Congress. Patent Business. Practice, Court of Claims and U. S. Supreme Court.

MARINE FOUNDERS USE OUR C. F. M. FOUNDERS PERFECT WASH.

For LOAM, DRY SAND AND SKIN DRIED CASTINGS. HAS NO EQUAL IN THE WORLD.

PERMIT US TO DEMONSTRATE THIS. **CLEVELAND FACING MILLS, CLEVELAND, O.**